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Open air workshops and multimetality in Late Iron Age Scandinavia
Svensson, Andreas

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TH1 INTERPRETING THE ARCHAEOLOGICAL RECORD

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

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

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

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

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

Archaeology – despite having entered the ‘age of symmetry’ and ‘post-humanism’ and regardless of paradigmatic shifts and re-orientations such as the ‘animal turn’ – has so far largely ignored birds and their contributions to human lifeways. This session is dedicated to fill that void. It aims to trace the construction of human-bird interfaces through prehistory and early history in order to re-assess the changing role of birds in human societies. Although birds – qua animals – are increasingly regarded as historical agents in their own right, the focus of the session is on the intricate interplay of bird and human lifeways 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 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 spatiotemporal 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: Prof. Russell, Nerissa, Cornell University, Ithaca, NY, United States of America (Presenting author)

Keywords: Anatolia, Neolithic, zooarchaeology

Presentation Preference - Oral

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

TH1-01 Abstract 04

The Human-Bird Interfaces in the Eneolithic period from Balkans

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

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

Keywords: Balkans, Birds figurines, Eneolithic

Presentation Preference - Oral

The aim of this paper is to explore the complex interaction between humans and birds in the Koljadenmer-Gumeznica-Karanovo VI communities (ca. 4500-3800 BC) from the Balkans (Romania and Bulgaria).

Thus, our investigation will cover the bird figurines iconography study from some key-sites in the target area (e.g. Meriuta, Sutuna, Vlaseasti, Yunatale, etc.), in correlation with the zooarchaeological analyses, in order to identify the significance of avian species in the Eneolithic societies, both symbolically and economically. A special attention will be granted to some hybrid type of figurines that combines the anthropomorphic and zoomorphic elements of humans and birds because it reflects the interface between both species, and it may help to decipher the particular biographies of those past communities.

This approach brings a whole new perspective on the construction of human-bird interfaces in prehistory, and how some specific artifacts (the hybrid human-bird figurines) have the potential to redefine the role of birds in the human societies. This research is funded by a grant of the Romanian National Authority for Scientific Research, CNCS – UEFISCDI, project numbers PN-II-ID-PCE-2011-3-1015.

TH1-01 Abstract 05

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

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

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

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

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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 Tajo de las Figuras (Benalup- Casas Viejas, Cadiz), which represents the 99.94% of the total of bird representations of postglacial rock paintings in the Iberian Peninsula. In 17 square meters of wall surface 962 pictograms are represented, of which 208 are 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 exitus in the creativity, 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 distributed 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 Cañam), due to its complex exchange of intervisibility between shelters with paintings (Arco and Tajo de las Figuras) and megalithic tombs.

TH1-01 Abstract 06

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

Author: Dr. 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 – 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 conventions in the local Sittula 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 Đolņekalnī Hallestatt culture of southeast European Slovenia will be presented in the context of local human-bird interactions, and modes of depiction as well as contextual associations between avian imagery will be presented to demonstrate Đolņekalnī Hallestatt 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. Günter, Yoonme, Wuppertal, Germany (Presenting author)

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

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

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

Keywords: Iron Age, Mediterranean region, ostrich eggshells

Presentation Preference - Oral

As this quotation of Xenophon (Anabasis I, 5) suggests, ostriches were the ultimate free-ranging animal during the Iron Age (c. 1200-300 BC). Their Mediterranean habitats covered North Africa, Egypt, Anatolia and farther east.

Ostriches were highly significant 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-painted ostriches 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 Ububurn shipwreck. The shells were manufactured as amulets or beads for necklaces and earrings, 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 Asia, Egypt, Greece, Ethiopia and beyond. Aside from noting them in funerary and dedicatory contexts, no research to date has sought to understand their trade mechanisms.

Iron Age ostrich 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 sustain the cult of the queen of all birds?
Th1-01 Abstract 08

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

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

Kingfishers feature prominently in Chinese art. They are a common topic in medieval poetry and their brilliant plumage—symbol of beauty—was used to adorn headaddresses, combs, fans and screens. Clearly mentioned as creatures living in regions to the south or in the south of the Chinese empire, historical records suggest that already during the 2nd century BCE local groups sent kingfisher feathers and sometimes even live birds to the imperial court as tribute. Even though kingfishers seem to have been known throughout a larger part of ancient China, this talk focuses on depictions that stem from regions forming part of the natural habitat of the various species of Alcedinidae—a name that is used in 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 wood 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: Kurioso, Tuuk, ZBA/Taitiin 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 Balto-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’ worldviews. Most of these pendants are cast amber 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 discovered from burials, settlement sites, hearths, cremation 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-Ugrian identity will be considered briefly.

Th1-01 Abstract 10

Toward an Archaeo-Omriology of the Bering Sea Region

Author: Prof. Hill, Erica, University of Alaska Southeast, Juneau, United States of America (Presenting author)
Keywords: Bering Sea, birds, human-animal relations
Presentation Preference - Oral

Archaeological evidence from the Bering Sea region of the North Pacific indicates that prehistoric human inhabitants possessed a broad and sophisticated knowledge of birds and their behaviors. Reconstructing human relations with birds requires integration of multiple lines of evidence, including imagery, narrative, and human and animal remains. In this presentation, I discuss the archaeological evidence that humans attempted to mimic or acquire the abilities and physical attributes of some bird taxa, such as lions (lions) and shorebirds. Human burial as early as the (Butin period (c. 400 CE), caches, masks, amulets, and ethnographic narratives indicate that select bird taxa mediated the human experience of coastal environments.

Th1-01 Abstract 11

Wild birds in medieval Italy: an investigation of their roles in diet, environment and society

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

Wild birds are intrinsically associated with our perception of the Middle Ages. They often feature in heraldic designs, paintings, and books of hours; few human activities typify the medieval period as much as falconry. Almost obsessively portrayed in the famous Bayeux tapestry (celebrating 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 contexts. The subject 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 butcher marks on bones, others were more likely to have produced feathers or acted as hunting companions and status symbols. The paper will also contrast urban and rural evidence and investigate any apparent diachronic change.

Th1-01 Abstract 12

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

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

Birds were a small but often important component of diet and economy in the past, particularly in islands, as a diverse range of birds, especially aquatic birds, thrive in coastal and island locations. Large colonies of gregariously breeding seabirds would have provided past populations of these locations with a concentrated resource base that could be targeted intensely or sporadically for meat, eggs, oil and fat. Bird use in the North Atlantic Islands is therefore integral to fully understanding life, diet and resource use in these settings. This paper presents results from a large-scale investigation of Mesolithic to Post-Medieval bird use in the North Atlantic Islands that involved collecting pre-existing avian data and combining it with new, in-depth analyses. The archaeological dataset is considered alongside modern species profiles, and contextualised within the wider historically documented tradition of fowling. The zooarchaeological dataset revealed that whilst many birds were sourced locally, others required specific fishing trips to more distant areas of the landscape. Several key species exploited through time and space (such as gannet and guillemot) would have been acquired from dangerous areas of terrain such as cliff-faces. 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 fishing profiles responding to specific needs (e.g. netting of waders in winter to supplement the diet) indicates a degree of liminality in these landscapes. Historically documented case studies such as the fowlers of St Kilda characterise the duality of isolation and connection in these island locations and their avian-human resource networks.

Th1-01 Abstract 13

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

Author: Pitt, Jacqueline, Bournemouth University, Bournemouth, United Kingdom (Presenting author)
Co-author(s): Feider, Michael, Bournemouth University, Bournemouth, United Kingdom
Keywords: Human-bird interactions, Material culture, Zoorarchaeology
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 during the Bronze Age
to the Roman period, across Europe. Particular focus is given to one of the most commonly found birds, the domestic chicken. Comparison of bird species present in avian assemblages at archaeological sites during this period is used to identify cultural and behavioural changes in human-bird relationships. The combination of species, site location, and the type of sites within which they are found can tell us much about the societies with which they are associated, from religious practices, to subsistence strategies, and even entertainment.

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

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**TH1-01 Abstract 14**

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

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

**Co-author(s)** - Dr. Grau Sologeota, Idos, The University of Sheffield, Sheffield, United Kingdom

**Co-author(s)** - Dr. Corbino, Chiara, The University of Sheffield, Sheffield, United Kingdom

**Keywords:** Britain, Duck, Goose

Displayed preference - Oral

Geese and ducks have been used in Britain from late prehistory until the present day for a multitude of reasons including for their meat, their eggs, their feathers, and their fat. We know from historical sources that the economic and cultural significance of these animals has changed over the years 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. We now know that the human economy and the domestic forms became more common than wild fowling, when selective breeding started to occur, and when these animals started being exploited for very specific economic and cultural reasons. This paper discusses the changing use of these birds from the early Roman period until the postmedieval period in Britain by combining osteological assemblages from several sites, including a range of different site types and geographical locations. Key changes in the use of these birds will be discussed using four main proxies: differences in taxa frequencies, the relative frequency of immature bones, variation in butchery practice, and changes in size through time. Taxon identification was achieved using recently developed morphometric criteria at the University of Sheffield. This paper was possible due to combining results from two post-doctoral projects and one PhD project at the University of Sheffield.

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**TH1-01 Abstract 15**

**Food for the Dead or Symbol of Rebirth?**

**Culinary offerings and incubated eggs from a Roman cemetery**

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

**Keywords:** antiquity, archaeozoology, eggshell

Presentation Preference - Oral

The late Roman site of 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 regarding eggshell, and the number of affected areas was very different between eggs. It could possibly be a taphonomic origin. It is for this reason that we are 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.

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**TH1-01 Abstract 16**

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

**use & symbolism in East Iberian Peninsula**

**Author** - Dr. Iborra Eres, Maria Paz, Iborra, Victor, Cervera, Plaza, Vicente, Valencia, 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-century BC. Iberian society was highly urbanised and socially stratified (Bonet and Mata 2009; Ruiz 2000, 2003; Ruiz and Molins 1993). The society was still predominantly agrarian, with agriculture and livestock husbandry constituting the basis for subsistence. However, the area was already incorporated in the Mediterranean trading routes in order to participate in these trading networks mainly with Phoenicians and Greeks (Bonet and Mata 2009; Sammarti 2009). This world was structured into a variety of territories characterised by a complex pattern of hierarchical settlement. The main population nucleus was the oppidum, a large site of around 10-15 hectares and the capital of the political area. The other settlements were small, 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 result of ritual actions. In this last case bird’s go with human remains inside urns and pits such as domestic or funerary offerings. The identified species are: chicken (Gallus gallicus domesticus), pheasant (Phasianus colchicus), golden eagle (Aquila chrysaetos), goshawk (Accipiter gentilis), mallard (Anas platyrhynchos), little bustard (Tetrax tetrax), pheasant (Columba livia/oenas), little owl (Athene noctua), barn owl (Tyto alba), Eagle owl (Bubo bubo), little stork (Ciconia ciconia), guil (Larus spp) and Cory’s shearwater (Calonectris diomedea). Some birds are hunted and the bones used to create musical instruments (Iborra 2004; Iborra and Pérez Jorda 2013; Iborra, 2016; Castañol, 1994).

Bird pictures (figures) are usually represented on ceramic vessels, where they appear in different types of scenes. Scenes of hunting, war, funerary and domestic life. Although they can also be find others materials such as ceramic, sculpture and metal craft.

To what extent are birds important in Roman gardens?

**Author** - Mgr. Úraneva, Valéria, Institute for Classical Archaeology, Prague, Czech Republic (Presenting author)

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

Presentation Preference - Poster

Viewing various species of birds, especially the peacock, peasant, guinea fowl, partridge, duck, is a frequent motif on floor mosaics with a garden theme in the Roman world. There are also wall frescoes depicting gardens full of birdlife for example from Lux’s house at Prima Porta near Rome from the 1st century AD and from a house at Vrinum (today’s Zuffenfeld) in the Roman province of Noricum from the 2nd century AD. But does it reflect keeping birds in gardens itself? On some particular sites are remains of architectural structures reckoned as aviaries, which will be displayed on example from the Roman province of Gaul on Main-Vechten site from the 3rd century AD and for further comparison those from Maison de Valère 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 acupium, hunting wild birds within venatio/munera, which is mentioned in Palladius’ s work. Similarly in this way is also reflected a higher social status of the villa owner. Based on literary, iconographic and archaeological sources it is obvious that birds were kept in Roman gardens for pleasure or some use. The meaning of bird’s presence in focus amouses is not sufficiently clarified.
PETRIFICATION PROCESSES IN (PRE )HISTORY

THI-02 Abstract 01
Petritification: a concrete comprehensive diachronic concept for past process comparison

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

The moment we want to describe, quantify and compare processes over large distances, from different periods and in diverse materials we need abstract concepts. To do this in a highly materialistic subject like Archaeology, a concept will have to be as concrete and measurable as possible. At the same time, it must be transferable to the intangible as well as to the – in our conception – magical minds of the people we study. Such a seemingly simple concept is petrification. Apart from its obviously Christian roots (Apostle Petro) 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. Shepard – conscious choice of stone over wood as building material especially for churches, town walls and funerary monuments it 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, parcelling 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 perspective as 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 ‘liquification’; it will be the topic of a follow-up session.

THI-02 Abstract 02
Liquid time, petrified objects. Concepts of historical change in archaeology

Author: Dr. Gramsch, Alexander, German Archaeological Institute, Frankfurt a. M., Germany (Presenting author)
Keywords: material culture, petrification, transformation
Presentation Preference: Oral

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

The theoretical situation and a model of analysis will be explained through cases involving a trans-Mediterranean perspective (i.e. both in Africa and in the Near East and in Mediterranean Europe), during the Neolithic and up to the Bronze Age. 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 life and abandonment of the buildings. Architectural analysis reads these deliberate and fortuitous processes from pits and postholes, wear patterns and structural remains. In this way, the creating, shaping and sheltering of prehistoric life can be traced, as well as any changes in architectural practice.

The proposed paper will focus on such changes, specifically from fluid to more solid concepts of later prehistoric architectures, described in this session as “petrification.” It starts with recent work on Bronze Age timber roundhouses in northeast Scotland. This identified reactive, shape shifting architectures responding to the activities and energies produced within them. The fluidity of 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 more rigid structural shells. Drawing on later prehistoric and early medieval evidence from Britain, Scandinavia and the continent for comparison, architectural analysis will trace such patterns of “petrification” within the domestic sphere.
activity in the alpine uplands (suggested mainly by palaeoenvironmental proxy data), as if the earliest pastoral groups exploited much more ephemeral shelters. This observation opens a series of interpretative questions: What triggered the construction of these permanent structures during the Bronze and Iron Age? Was it just for functional reasons or was it also a way to facilitate ‘possession’ of this ‘marginal’ environments? In this paper the origin of dry-stone pastoral structures in the Alps will be investigated. The available archaeological data will be revised, to assess the chronology of their diffusion and to find structural similarities that might mirror functional and cultural aspects. Insights from recent ethnoarchaeological investigations will enable the role of these structures within the upland landscapes to be inferred.

In this paper the origin of dry-stone pastoral structures in the Alps will be investigated. The available archaeological data will be revised, to assess the chronology of their diffusion and to find structural similarities that might mirror functional and cultural aspects. Insights from recent ethnoarchaeological investigations will enable the role of these structures within the upland landscapes to be inferred. Ever since Huizinga's Homo ludens, a need has been felt for an archaeological perspective on play in the context of Medieval Europe. Who played at what, where, when, and why, and how is this reflected in the archaeological record? This session will explore the diversity and significance of play in human society, from the widest European and Mediterranean perspective. It will draw on material evidence for play, both portable objects and excavated structures, in the context of other types of sources including written records and depictions in art. Approaches are encouraged from any angle: types of play (including board games, sports, drama, hunting, music, and toys); spaces and places for play (public and private, including hunting parks, long galleries, tournaments, mazes, stages, grounds, auditoriums and the informal possession of other spaces); gender and performance of play; children and adults at play and questions of ritual and identity (including associations with death and funerary rites). The question of play is particularly resonant with the conference theme of Archaeology Without Borders; but is of course also about interpreting the archaeological record. The session is keen to attract contributions that deal with performance and movement, play (and playthings) on the move, and play as cultural exchange (including colonialism). We are interested in play and mobility across time and generations, across or within social hierarchies and across the spaces of geographical and political boundaries. Play can articulate identity, both then and now. Also welcomed are contributions that focus on today's play (including board games, computer games and cinema) where it clearly draws on the archaeological past, and on visions of how play (including role-play) can facilitate archaeological interpretation of and public engagement with the past.

Keywords: archaeology of urban centres, Greek colonization, urbanism
Presentation Preference: Oral

TH1-02 Abstract 11
Set in stone? The influence of petrification on Mediterranean urbanism (c. 700-300 BCE)
Author: Dr. Maschek, Dominik, Department of Classics, Ancient History & Archaeology, University of Birmingham, Birmingham, United Kingdom (Presenting author)
Keywords: archaeology of urban centres, Greek colonization, urbanism

Research on pre-modern cities has mainly focused on two aspects of the ancient Greek polis: On the one hand, the polis has been seen as the substrate for urban culture based on a politically active class of citizens. On the other hand, many scholars have emphasized the "straight" qualities of ancient Greek cities: In this view, the "petrified" shapes of public buildings and meeting places have been taken as direct indicators for social and cultural ideas. However, recent approaches in urban studies, sociology and classical studies tend to contradict such a straightforward separation between materiality and semantics of ancient cities. First of all, the meaning of public urban spaces as well as their basic definition and ideal-typical description were constantly changing both in time and due to human agency. Urban designs which were theoretically conceptualized for future generations could be fundamentally transformed by changing courses of real-life-cycles, losing their historical eminence in the process. Especially in the Greek colonies throughout the central Mediterranean, processes of petrification played an important role in the formation of urban communities. Archaeological evidence allows for the conceptualization of petrification as combining both resource management and social negotiation amongst the inhabitants of newly defined urban centres. Furthermore, our written sources need to be put into perspective using the results of archaeological investigations. Literary descriptions from the 5th century BCE onwards stand against ample archaeological evidence for a high degree of regional diversity in both centre and periphery of the Greek world. The present paper thus aims at comparing the different sets of sources and their respective interpretative potential. In a second step, the concept of public space in Greek cities shall tentatively be defined by looking at discontinuities and interactions between "petrified" urban fabric, social space and normative discourses.

Keywords: archaeology of urban centres, Greek colonization, urbanism
Presentation Preference: Oral

TH1-03 Abstract 01
Medieval Play and Archaeology: an Introduction and a Challenge
Author: Dr. Willemsen, Annemarieke, National Museum of Antiquities, Leiden, Leiden, Netherlands (Presenting author)
Keywords: material culture, mobility, play

Medieval Play and Archaeology: an Introduction and a Challenge Before looking at archaeological remains of play, we need to try and understand what that concept meant to a medieval person. In his ‘Homo ludens’, Huizinga defined play as a free act, intentionally outside ordinary life, without direct material profit, within a distinct time and space, orderly to certain rules, and creating communal ties. People can play in sober earnest - like children, footballers and chess players - but still know well they are playing and that it is not the real world. Following this, we should be looking at a large variety of medieval ‘playful’ activities. Until recently, the archaeology of medieval play has been largely limited to the recognizable material remains of board games, and children’s toys, while specific designated areas for play have been touched upon as part of excavated buildings or landscapes. The way forward may be, in the wake of Huizinga, to see play and its material dimension less as an isolated outside category and more as a fixed part of most medieval activities.

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

Keywords: material culture, mobility, play
Presentation Preference: Oral

TH1-03 Abstract 02
Playing the Heroic Hunter: The Role of Play in the Design and Utilization of Medieval British Parks
Author: Dr. Maitloy, Kevin, University of Wyoming, Saint Paul, United States of America (Presenting author)
Keywords: Nature, Play, Performance, Scotland, Parks, Medieval

Medieval British park landscapes are often discussed in terms of aristocratic leisure and the prestige associated with ownership and use of such impressive feats of monumental architecture. As hunting grounds, these enclosures offered social venues for...
Interpreting the Archaeological Record

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

Keywords: amusement, space, toys

Presentation Preference: Oral

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

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

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 reactions with mental agility and strategic thinking. At their most successful they can produce a feeling of flow. Reflexively they allow an escape from the world as a means of re-defining it (including re-locating the individual within it). Board games speak to the mobility of people – physically, intellectually and spiritually. They help to reify and crystallise rituals and social orders whilst at the same time opening up a space for encounters that might change things. They are both of this world and allow movement away from it or the making of new worlds. Board games are both structured by and structure mobility. The next move is yours!

The Mystery of the Shield-Biting Warders.

Reconstructing Chess in Medieval Northern Europe

Keywords: cultural transfer, mobility, play

Presentation Preference: Oral

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

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

Keywords: gaming pieces, raw material, resource colonization

Presentation Preference: Oral

The paper will look at the use of whalebone as a gaming material in medieval Scandinavia. The history of the material is followed from its use in the Viking Age, through the medieval period, to its use during the Reformation and beyond.

Keywords: gaming pieces, raw material, resource colonization

Presentation Preference: Oral

This paper will investigate the use of whalebone as a gaming material in medieval Scandinavia. The history of the material is followed from its use in the Viking Age, through the medieval period, to its use during the Reformation and beyond.
This paper concerns Scandinavian gaming pieces from the Vendel and Viking periods (c. 550-1050 CE). The main focus is on the raw materials used and also on questions of chronology, typology, and distribution.

Game pieces were made of a wide variety of exclusive or eye-catching materials, such as glass, amber, ivory, walrus tusk and horse teeth. Most commonly, however, gaming pieces are described as being made of unspecified bone or antler. A recently conducted study has made clear that a majority of these are in fact made from whalebone, which also could be considered to be an exotic and scarce product.

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

There are also considerable implications for our understanding of the use of resources and the importance of coastal landscapes during the period in a broader sense. It is most probable that the whalebone gaming pieces were traded from the north Norwegian coast to large parts of central Sweden and beyond. The large geographical distribution of whalebone artefacts bears witness to developed interregional trading networks in Northern Europe, already during early medieval times.

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

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

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

Keywords: Archaeology, Games, Chess, Objects

Presentation Preference - Oral

The chess defined as „Sandomierskie” were unearthed on the stand no 7 in Sandomierz on the, Old Town Hill. According to the tradition passed over by Jan Długosz (polish chronicler: 1415-1480), this place is considered to be the oldest part of this town. From the year 1958 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 is definitely not only one of the most interesting discoveries of the Early Middle Ages chess pieces on the territory of Poland but also an example of the development of the chass 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 no7 and to determine the context of the appearance of The Chess of Sandomierz in this area. During the two research seasons 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 no7 and to determine the context of the appearance of The Chess of Sandomierz in this area.

New findings of the excavation of the sand area under the hut allowed to extend the excavation area, to undertake a comparative analysis of the discovered chess in comparison with the sets from the Early Middle Ages. In the next season of the excavations a large set of chess, with only two pieces missing, was discovered. The contexts prove the latest phase of the habitation of the Sandomierz area in the 13th century.

Recently, in the year 2015, another excavation was undertaken in the neighborhood of the hut with the chess and the first complete set of chess from the Early Middle Ages was discovered. So the full context of the appearance of the chess was established, which allows to consider the excavation not only as an isolated find but as an integral part of the habitation structure of the area.

The chess set, which was considered as a sand area find, is now fitted into a broader context of the early medieval habitation of the Old Town. This research can fit into the framework of modern research questions concerning the presence of specialized, non-domestic finds in the habitation areas.

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

Author - Wlachko, Ewa, Inowrocław, Poland (Presenting author)

Keywords: board games, game pieces, medieval games

Presentation Preference – Poster

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

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

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

Co-author(s) - Dr. Acconcia, Valeria, Universita G. d’Annunzio di Chieti-Pescara, Chieti, Italy
Co-author(s) - Dr. Gori, Maja, University of Heidelberg, Heidelberg, Germany

Keywords: Ethnicity, Migration, Mobility

Presentation Preference - Oral

Although studies on mobility have been the focus of greater attention in archaeology over the past 150 years, they evolved in constant tension with those emphasizing the notion of indigenous evolution. Consequently, the long-standing debates between ‘immobilist criticism’ and migration 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 polarizing 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. Migration may be large-scale phenomena, taking place independently from local or individual agency, as well as more subtle types of diachronic, taking place on a small-scale and depending on individual agency. Likewise, the traces left behind by people on the move are not to be addressed by combining different disciplines and analytical methods. The shift from generalising models to a multi-scalar notion of mobility brings on the table new questions and a new research agenda. By gathering a wide array of case studies, crossing different disciplines and analytical methods, we aim to undertake an in-depth analysis of the invisible constant. The invisible constant.
Europe over a long time span, we aim not only to open up new interpretative horizons for a better understanding of human mobility in the past, but also to contribute in more humane fashion to current debates about immigration.

TH1-04 Abstract 02
Changing world changing creativity?

Human mobility dynamics and late Paleolithic handicrafts

Author - Iovino, Maria Rosa, Istituto Italiano Paleontologia Umana, Rome, Italy (Presenting author)
Co-author(s) - ZAMPETTI, D., Istituto Italiano Paleontologia Umana, Rome, Italy
Co-author(s) - Et ali, et ali, Et ali, Et ali, 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 sites from Italian territory we try to reconsider people movement and human-environment interaction around 12,000-10,000 BP. The analysis of decorative technologies (e.g.: engraving, pitting, piercing, painting, sticking) helps to understand and to trace styles/traditions, methods and ability, the analysis of mineral and of organic materials used as decorative medium help to explore and to trace substance provenience and to better focus in what is a "local" tradition about the use of a substance and what is not.

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

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

Author - Tempel, Michael, Neuchâtel University, Enges, Switzerland (Presenting author)

Keywords: Mesolithic, Neolithic, Transition

Presentation Preference - Oral

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

The spread of the Neolithic into Western Anatolia and Europe occurred over several millennia, involving migrants as well as local players. The reasons for the spread are complex, as are the manner in which the spread occurred. In the Central Mediterranean Basin, the first archaeological evidence for Neolithic attributes goes back to 9000 BC in the Aegean Basin, and at the head of the Adriatic the Transition to the Neolithic is completed by 4500 BC in the Trentino-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 I will present some of the possible reasons for the spread of the Neolithic, and how some of the autochthonous populations responded, using a few case studies from the Aegean and Adriatic Basins. Sicily and the Balkans, from which we can glean an insight into the highly complex human behaviour and response, when faced with the phenomenon.

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

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Keywords: Eastern Fennoscandia, Finland, Karelia, Lake Onega, Idite, contacts, Preboreal, colonization

Presentation Preference - Oral

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

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

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

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

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

Keywords: LBK, migration, Neolithic

Presentation Preference - Oral

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

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

Author - Semmoto, Masao, Ancient Orient Museum, Isehara, Japan (Presenting author)

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

Presentation Preference - Oral

Pottery with cord decoration dated into the late 4th millennium BC to the 3rd millennium BC from the southeastern Europe has been regarded as one of the most representative components of ‘Yamnaya cultural block’, which was formed in the North Pontic-Caspian area (Malloy 1991, Harrison and Heyd 2007). While this kind of statements have been often made in terms of topics of...
migration by nomad-herders. Little efforts have been put into the interdisciplinary studies of the pottery with cord decoration. This presentation aims at examining characteristics of the pottery with cord decoration in the Balkan Peninsula and their temporal and spatial distribution, and explaining how Yamnaya groups and their descendants migrated from the North Pontic area to the Balkan Peninsula.

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

Secondly, I compare the findings in the Upper Thrace 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 Thrace 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 cord decoration in the northeastern Upper Thrace, which spread to the southeastern Upper Thrace, the western Upper Thrace and the northern Greece, where no Kurgans were erected. Secondly, the provenance of the cord decoration from the Upper Thrace was presumably connected with that from the eastern Romania, other than the real provenance area, supposedly the northeastern Pontic area.

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

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

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

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

**Presentation Preference:** Oral

The diffusion of Cetina pottery is a well-recognized phenomenon interpreted as the material traces of migration of small groups on the move from the Dalmatian coast to Italy, Greece, and Malta. This migration is connected to the spread of pottery styles, funerary structures and practices, and prestige items. The so-called Cetina culture is, indeed, an indicator for mobility of the communities inhabiting 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 exist 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
(In)visible traces of the exogamous mobility in Late Bronze Age?

Interpreting Unfurnished cemeteries

**Author:** Skvor Jezemnic, 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 (Bd D – Ha A) cemeteries from south-eastern Alpine region and Northern Carpathian area. In the end of Middles 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 in certain degree members of local Bronze Age communities. Additionally, the numerous simultaneous metal hoards from Slovenia, which are similar in composition as the rich male graves in the territory of north eastern Pannonia and Slovakia, could also be in part interpreted as testimonies to the burial patterns from Northern Carpathian area are in this period on the other hand more numerous and they contain some hundreds of graves.

According to our analysis we can state that the best analogies for several grave-goods from the cemetery in Ljubljana (Slovenia) can be found in the objects (specially urns) from distant archaeological sites, pertaining to Piliny and Suciu de Sus culture in the northern Carpathian basin. These analogies, not only in grave-goods, but also in burial rite (cremation in an urn), grave stone constructions and social practices (hording of special objects in a special manner) point to very intensive, probably direct contacts between the treated regions in the beginning of the Late Bronze Age. Taking into account that urns, which contained the ashes of the deceased, acted as representations of the human body, it is interesting to emphasize that in both research areas special types of vessels (jugs, cups) were use as urns only in female and children graves. Besides the similarities in the archaeological finds between two research areas, we observe also the similarities in the stone grave constructions. Both in Ljubljana and in Radovica 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 objects are totally absent in the territories between two research work areas (Triandarhia, 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?
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
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Co-author(s) - Saxkjaer, 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 Eubean presence is detectable in the western Mediterranean, including Northern Africa, Spain and Italy. The Eubeans settled in the Sibaritide, where Greek-indigenous coexistence emerged in the settlement of Timpone della Motta in the first half of the 8th century BC. This coexistence entailed a shared and mixed cultural framework at the site, which is visible in the pottery production as well as in the production of textiles taking place within the sanctuary at the site. In late 8th century BC, the Sibaritide witnessed another Greek migration, that is, the Achaeans migration, which most famously led to the foundation of the so-called colony of Sybaris.

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

TH1-04 Abstract 11
The viability of the invisible: new evidence from technological studies and material analyses
Author - PhD candidate Rautino, Anna, La Trobe University, northcoast, Australia (Presenting author)
Co-author(s) - Tysoe, 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 BC. Historically, it is a crucial moment for Sicily because it initiated an irreversible process of modification of the original indigenous culture. This event brought profound and significant changes to the material culture of the indigenous communities. Earlier studies explain this revolution in material culture as the result of ‘Hellenisation’, a seemingly one-way process of adopting the ‘superior’ Greek culture, with little influence traveling in the opposite direction. However, recent socio-anthropological studies claim that such cultural interactions are more complex and can incorporate not only a two-way process but also 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 Euboean colonies, a multi-disciplinary approach was adopted. This paper focuses on the archaeological analysis of materials discovered in southeastern Sicily to fill out the picture of the rich and complex cultural landscapes of the region. The goal of this paper is to explore and explain the complexity of culture contact and the impact of foreign influence on the material culture in the Sibaritide area. The analysis of imported and local pottery, in particular, is of particular interest as it provides a window into the social, economic and political relationships of the indigenous Sicilian communities during the Greek period.

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) - Bratu, C., 1st December 1918 University, Alba Iulia, Romania
Keywords: mountain passage, paleolithic, post Roman, trade route
Presentation Preference - Poster
Beginning with 2012 a region in the Eastern Carpathians of Northern Romania was systematically surveyed for the first time. The focus of this research is to, at this date, the study of the mountain passage ways between two historical regions, that of Maramureş and Bukovina. The field survey carried since 2012 and their results so far indicate at least two main migration routes that take through a glacial valley that reaches 1550 m a.s.l. in the Rodnei Mountains and the other one further north in the Maramureş Mountains. The archaeological finds, consisting of lithics and pottery, are confirming a human presence at these altitudes, from Paleolithic until the Roman period. Through the use of specific archaeometric analyses the activity within the area will be presented as a search for raw materials by the prehistoric populations followed in the post-Roman period by the establishment of a trade route gateway between the two sides of the mountains.

TH1-04 Abstract 13
Origin and Development of Balbals Stelae
Author - MA Janik, Paweł, Antiquity of Southeastern Europe Research Centre University of Warsaw, Legnica, Poland (Presenting author)
Keywords: Kurgan, Nomads, Stele
Presentation Preference - Poster
Kurgan stelae, also known as babas (Russian: камень 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 Eurasian Great Steppe and surrounding areas. This custom is in practice from the Eneolithic to almost Modern Times. The term babal came from a turkish 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 soviet and turkish culture, especially in the southwest of Egypt and among Cumans (Kipchaks). Usually these objects were memorials honouring the dead, but there were some exceptions. For most periods kurgan stelae represent mostly males, however in the Kuman Period female stelae were very popular. Babals commonly depict warriors holding weapons and drinking horns or bowls. There might also depict so many other items like belts and tools. Probably from babals may derive other kinds of stelae, for example: deer stones, Bakhtiari lion tombstones and stone rams and horses from Azerbaijan.

The purpose of my poster is to introduce to evolution and development of kurgan stelae and show differentiation this kind of artefact and propose 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 examined here, even at the beginning of the Neolithic, while in the Northern French Alps, wild game appears to be more hunted. Taking into account the long term occupation of some settlements, animal production and herd management are explored to define the subsistence strategies of these neolithic communities and the possible movement of the herds to seasonal pastures. Through a comparison of these two regions, we try to gain a better understanding of the territorial and economic organisation of these alpine communities.

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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.

We feel that only the combination of different data can provide reliable answers, a careful design strategy has been built. This includes a detailed landscape and environmental reconstruction, by means of geological and palaeoecological cores, an archaeological investigation of the differences and similarities in ceramic typology between Latium Vetus and Campania, petrographic and isotope analysis. The first results of landscape reconstruction and potential excavation sites will be presented in the poster.
TH1-05 Abstract 01

**Is it gold that matters? The role of sumptuous burials of women in Bronze and Iron Age Europe**

**Author** - Prof. Dr. Metzner-Nebeleis, Carola, LMU Munich, Munich, Germany (Presenting author)

**Keywords:** sumptuous burials of women Bronze Age Iron Age

**Preservation Preference - Oral**

Ostentatious burials are often exclusively seen within a close typo-chronological framework in time-space related cultural units. Thus archaeologists often analyze sumptuous graves in relation to burials of seemingly lesser importance from the same cultural unit either in order to reconstruct social hierarchies or in order to distinguish specific cultural traits.

In these traditional analyses of ostentatious burials female graves have played little or no role. Analyses which have dealt with female graves dating between the 2nd and first half of the 1st millennium BC has largely 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 we examine ostentatious graves of women in a wide chronological as well as geographical scope with the aim to ask under which conditions sumptuous female burials occur, how they relate to contemporary male burials in quantitative as well as qualitative aspects and why in some cases they seem to be absent in the archaeological record? I will focus on case studies ranging from the Early Bronze Age in western and Central Europe, the late Bronze Age in Central Europe to the early Iron Age in the so-called western Hallstatt Culture and the Scythians primaer graves of the east European steppes.

TH1-05 Abstract 02

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

**Author** - Dr. Trémeaud, Caroline, UMR 8215 Trajectoires, LYON, France (Presenting author)

**Keywords:** Bronze and Iron Ages, Hierarchies, Methods

**Presentation Preference - Oral**

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

Such an approach needs to take into account the difficulties to estimate values. In preliterate societies, emic approach is not possible; the ethic 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 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, Switzerland, 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 emic framework to funerary data. I want to have a critical look 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 elit). These new transversal, qualitative approaches make it possible especially to develop a gender approach and a characterization of social structures and their evolution on a long term perspective.

TH1-05 Abstract 03

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

**Author** - Dipl.-Rest. Elsinger-Rist, Nicole, Landesamt für Denkmalpflege, Esslingen, Germany (Presenting author)

**Keywords:** Burials of change, modern excavation, Sumptuous Burial

**Presentation Preference - Oral**

The Heuneburg is on the upper Danube is among the best-researched (intensively investigated) settlement centres of the Hallstatt culture in Central Europe. While the research regarding the settlement structures of the Heuneburg and the surrounding area has been a key element in German Early Iron Age research since the 1950s, careful exploration of the apparent princely graves has been relatively neglected in the last 70 years. The targeted excavation of a richly endowed child's burial site, and of a site in which princesses were interred, south of the Heuneburg, has given powerful testimony to the fragmentary state of our knowledge of the sociopolitical processes and structures of the 6th century BC. The presentation offers an exemplary look into the manner in which a...
Interpreting the Archaeological Record

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, Shorewood WI, United States of America (Presenting author)
Co-author(s) - Fernandez Goetz, Manuel, University of Edinburgh, Edinburgh, United Kingdom (Presenting author)

Keywords: Iron Age, mortuary analysis, multiple burials

Presentation Preference - Oral

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

TH1-05 Abstract 06

Discernable Traces in Textil Archaeology

Author - Dr. Bandi-Burgess, Johanna, Landesamt für Denkmalpflege, Eastling, Germany (Presenting author)

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

Presentation Preference - Oral

The uniqueness of the late Hallstatt-period textile assemblage from the princely grave at Eberdingen-Hochdorf (SW-Germany) is not limited to its highlighting textile manufacturing as an economic focus in this region, providing differentiated insights into burial customs, the sequences of mortuary ceremonies or insights into concepts about the afterlife. It is relevant that this 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 07

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

Author - Dr. Botvina, Olga, Institute for the History of the Material Culture, St. Petersburg, Russian Federation (Presenting author)
Co-author(s) - Raduch, Oleg, Institute of Archaeology RAS, Moscow, Russian Federation

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

Presentation Preference - Oral

By the beginning of the Great Migration period Chernyakhov archaeological culture (its last stage) was spread in the left bank of the Dniester in forest-steppe zone. At the same time (periods D1 and D2 European chronology – 360 / 370-440 / 450 AD) on the same area occur several extremely rich sumptuous complexes consisting of prestigious gold objects (brooches, bracelets, neck-rings), the Byzantine silverware production, gold-embroidered garments, ceremonial weapons and horse harness. Findings of individual objects belonging to a prestigious culture of the time are known too. These complexes are not associated with burial grounds of Chernyakhov culture. They were found by chance and were considered hoards. Only one of them (Botvina Kamensk) was published by L.A. Matsulevich in 1934. The study how complexes have been discovered reveals that they are the burials. In Botvina Kamensk burial was in a stone crypt, built at the base of a high bank of a creek, which flows into the river Sudzha. Mapping of all finds indicates their exclusive relationship with the sources of large creeks flowing in deep canyons and at the same time associated with the watersheds of river systems. Discussed sumptuous complexes are very different from the burials of the Chernyakhov culture, even at it’s highest level examples. There are simple common explanations for this difference.

Keywords:

1. “Chernyakhov”, when the sumptuous burials attributed to later Hun period (the period D3, ie, 450-470 / 480 AD), when the Chernyakhov culture no longer existed. 2. “Ethnic” Both of these explanations are not satisfactory: 1. Late burials at Chernyakhov cemeteries in the area between the Dniester and Don rivers dated to stages D1 and D2 of European chronology. The presence of glass caps (as seen for the head) 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 decoration. 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 finds belong to the common European horizon of burials of the nobility, the leaders of the barbarian kingdoms, which arose at the beginning of the Great Migration period on the periphery of the ancient world. Often death caught up with kings and military leaders of the Great Migrations in the territory and the environment in which they had no historical roots, nor stable relations. Their tombs and grave structures are unlikely to be perceived as a place of worship and a landmark of the traditional movement. Perhaps this explains the absence of grave structures and the great efforts spent on to hide the ordinary burials of high-level persons, moving them 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 08

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

Author - Dr. Chang, Claudia, Sweet Brier College, Sweet Brier, United States of America (Presenting author)
Co-author(s) - Tourtellotte, Parris, Sweet Brier College, Sweet Brier, United States of America

Keywords: Iron Age, mortuary analysis, multiple burials

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 naturalophysical landscape and a mortuary and settlement landscape, we also wish to see the foundation for understanding social hierarchy and the nature of commoner-elite relations.

TH1-05 Abstract 09

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

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

Keywords: Aesthetics, Burials, Iron Age

Presentation Preference - Oral

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

TH1-05 Abstract 10
The Kurgans of Scythian Nobility in the Eurasian Steppes

Author: Dr. habil. Ochir-Goryaeva, Maria, Institute of archaeology Tatarstan academy of sciences, Kazan, Russian Federation (Presenting author)
Keywords: Eurasia, kurgan, Scythian epoch, nobility, Presentation Preference - Oral
Several thousands of burial sites of the Eurasian steppe dating to the Scythian epoch are associated with a number of archeological cultures of the Scythian type. Their funeral rite has been examined in a number of special papers and monographs, which were largely based on a comparative study of kurgans between each other in terms of their particular parameters. The present paper proceeds from a comparative study of all graves and other elements within one and the same mound in terms of their depth and arrangement to each other, as well as in terms of their orientation, according to the cardinal points, on the mound map, i.e. their planigraphy. To my knowledge, this is the first attempt of this kind. The undertaken analysis of the planigraphy of the kurgans is based on the data concerning every component of a mound earthwork such as walls, tunnels, bridges, stone embankments, etc., as well as every grave of one and the same kurgan, including central and secondary burials, horse interments and those of servants, servants and human sacrifices. Such complex earthwork structures, as well as numerous central and secondary burials are to be found only in the case of kurgans of the royal class, hence these are of major importance for planigraphical analysis. The graves located in the mounds have been analyzed to produce a number of their arrangement patterns with respect to the spatial representation of kinship and family hierarchy of the Scythian society and to their system of geographical orientation in terms of cardinal points. Importantly, the regional differences of the spatially shown on the kurgan planigraphical profiles seem to be associated with the cardinal and lateral spatial arrangement of the entire burial constructions in terms of the cardinal points. Moreover, if these are taken into consideration, it is no longer possible to maintain the idea of the Scythian-Siberian unity of the archeological cultures of the region, where in fact one deals with two distinct cultural communities. Also, as the present work has shown, there is a logical association between the spatial arrangement of the graves in terms of the cardinal points 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.

TH1-05 Abstract 11
On the Edge: The Politics of Death at the Ends of the Silk Road, c. 100 CE

Author: Prof. Linduff, Kathryn, University of Pittsburgh, Pittsburgh, PA, United States of America (Presenting author)
Co-author(s) - Rubinson, Karen S., ISAW--New York University, New York, NY, United States of America
Keywords: borderlands, Eurasia, Silk Road, Presentation Preference - Oral
Much has been made of the social and economic exchanges across the Silk Road, from Afghanistan in the west and China in the East. In the later first and early second millennium CE. Literary sources at both ends of the route document impressions of the ‘other’ as different from themselves – the residents of dominant state level societies. Material remains certify that the exchange was significant economically, but also culturally. Surely the most visible evidence of the value of that interaction was captured in the objects of the Silk Road, to which the paper will turn. These objects, where material evidence exists to the local region surrounding and收缩ed the elite. This paper will consider what message the assorted choice of non-local or non-locally inspired grave deposits, avowedly other as different from themselves – the residents of dominant state level societies. Material remains certify that the exchange was significant economically, but also culturally.

TH1-05 Abstract 12
Relative Chronology and Statistics of Bronze Age Cemeteries in the Southern Urals (Ural-Kazakh steppe)

Author: - Schreiber, Finn, University Berlin, Berlin, Germany (Presenting author)
Co-author(s) - Usmanova, Emma, Karaganda State University, Kazakhstan
Keywords: Bronze Age, Eurasia, Multivariate Statistics, Presentation Preference - Poster

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

My poster is about the results of multivariate statistical methods used in archaeology to establish a relative chronology for cemeteries. It desrtinates 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 archaeology and to a better understanding of cultural and social differences.

TH1-05 Abstract 13
Origin of the Polychrome Style Jewellery

Author: - MA Jank, Pawel, Antiquity of Southeastern Europe Research Centre University of Warsaw, Legionowo, Poland (Presenting author)
Keywords: Huns, Migration Period, polychrome, Presentation Preference - Poster

One of the most characteristic element of the hunnic culture of the Migration Period is the polychrome style jewelry. In this style the surfaces of gold or gold-plated 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 chasing in which the glass or gemstones were set in compartments of sordid 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, jewelry and other things. Many researchers have divergent opinions about provenance of this jewellery style. According to popular opinion, the polychrome style was 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-Husan culture and Kerkel culture) dated to period between 3rd century B.C. and 1st century B.C. These artefacts are very similar to polychrome style ornamental objects from the Migration Period. Some scholars (Armeehus 1971, 1980) claim that the “other” peoples had not such technology and knowledge to shape and stick gemstones and glass pieces to a gold foil. Other scholars (Schmiedig 2002: 237-58) affirm that polychrome style evolved from the hellenistic jewellery traditions. The problem is that there are some polychrome-like 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.

TH1-05 Abstract 14
Granulation, inclay and lostwax/lost 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 Period of the Western Regions, another set of burials, known from the excavations at Qozar, and particularly in the tomb of Cheesh, at Balaqan, Xingjiang, display a similar mixture of goods and practices. There artefacts included gold appliques and ornaments with granulation and loops that made clear western Asian connections as well as a preference for more easternly buried practices and items from dynastic China.

The comparison of these two settings will document the preference for exotic typical of borderlands, especially in times of expansion, political ambition and unrest. Bearing in mind that the choice of materials for one’s tomb is deliberate and not incidentally, we argue that the individuals buried were probably lesser leaders and their partners with some authority and that their tombs represent the unequal distribution of power. They were members of communities bordered by larger, more stable polities, making the politics of frontiers an important framework within which to understand these assemblages.
TH1-05 Abstract 14
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/Celtic 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.

TH1-06 Abstract 01
Finding and understanding the gardens of medieval castles

Author - PhD-student Andreasson, Anna, Stockholm University, Helsingborg, Sweden (Presenting author)
Keywords: garden archaeology, horticulture, medieval pleasure gardens

Presentation Preference - Oral

Gardens and horticulture played important roles in everyday life in Medieval castles. Plant products (food, medicine, spices, textiles and dyes) were needed to maintain diet and lifestyle, but from documentary sources we also know of pleasure gardens, important to health and to maintain the courtly/chivalric lifestyle. In Scandinavia in recent years Garden Archaeology has become a growing sub-discipline. Garden features of different kinds have been excavated for example in medieval towns. But castle gardens are still eluding us. Where do we look for them, how do we study them, and what can they tell us about medieval life?

TH1-06 Abstract 02
Archaeological evidence of lifestyle at Viljandi castle, south Estonia

Author - Arvi, Haak, Tallinn University, Tallinn, Estonia (Presenting author)
Co-author(s) - Rannamäe, Eve, University of Tartu, Department of Archaeology, Tartu, Estonia
Keywords: castle, Estonia, everyday life

Presentation Preference - Oral

Viljandi was one of the main castles of the Livonian branch of the Teutonic Order in Old Livonia. In spite of a long research history (first excavations were carried out in 1878), the interpretation of the old as well as recent evidence for lifestyle has become into focus of research only in the last years. Although there exists a list of office holders of the Livonian Order at Viljandi from the last years of existence of the Order (i.e. 1554), the question of activities carried out at the castle is far from being ascertained.

As the interior of the large majority of the rooms, especially in the main castle (Convent House), were fully excavated already in 1878–79, archaeological analysis has to rely on rather limited data, and the material obtained outside the buildings themselves. Based on the evidence collected during fieldwork in 1939, but mainly in 2000–2004, we concentrate on the information on diet, handicraft, and luxury in the castle, and the temporal changes we have established during the period of usage (ca. 1224–1610). Especially data from the excavations just east and southeast of the main castle allows discussing the activities carried out in the castle, and the way these can be traced from the archaeological record. We have employed find analysis, zooarchaeological analyses, as well as re-interpretation of the architectural and written data to ascertain the processes behind the formation of the find-rich deposits in the yard area east of the main castle.

In addition to conspicuous consumption and widely distributed material, the collected evidence very likely refers to crosstown making, and possibly some other form of bone and antler processing, as well as less specialised waste from the castle area. In conclusion, it seems that the best way to deal with data from the find-rich deposits is to first attempt interpretation on their formation, to figure out how much these are “typical” or “special” deposits. A few examples will be given in the presentation.
Interpreting the Archaeological Record

TH1-06 Abstract 03
Vanity or Hygiene? Combs and mirror frames in the Vilnius Lower Castle
Author: Dr. Pukienė, Rūta, National Museum the Palace of Grand Dukes of Lithuania, Vilnius, Lithuania (Presenting author)
Co-author(s): Kaminskaitė, Iūra, National Museum the Palace of Grand Dukes of Lithuania, Vilnius, Lithuania
Keywords: Archaeobotany; History of hygiene; Late medieval period
Presentation Preference: Oral

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

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

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

Fragments of tin used for decoration and also for undefined purpose were found. The specific production technology and the selection of material indicate that combs and at least a part of mirror frames could be imported.

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

TH1-06 Abstract 04
Tableware in the Vilnius Lower Castle: function, significance and evolution
Author: PhD student, Arvidziute-Ramanauskiene, Skaieste, Vilnius University, Vilnius, Lithuania (Presenting author)
Keywords: dining, tableware, Vilnius Lower Castle
Presentation Preference: Oral

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

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

TH1-06 Abstract 05
Iron nails of cultural layers from Klaipėda castle: a functional aspect
Author: Master Stankinėčiūtė, 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, and also city historical development.

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.
The selective deposition of metalwork in the Bronze Age: a pan-European phenomenon?

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

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

Presentation Preference - Oral

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

TH1-07 Abstract 02
Object deposition in Central Norway c. 2350-500

Author - Phd Henriksson, Merete, Norwegian University of Science and Technology, Trondheim, Norway (Presenting author)
Keywords: Late Neolithic, Bronze Age, Object deposition, Central Norway

Presentation Preference - Oral

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

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

TH1-07 Abstract 01
Introduction. The selective deposition of metalwork

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

Keywords: Bronze Age, deposition, metalwork

Presentation Preference - Oral

One of the intriguing things about the way objects become part of the archaeological record is that this often happened in a structured, patterned manner. This is particularly clear for metalwork from Bronze Age Europe. Can we make sense of this sort of practice, and if so, how? This paper will introduce the main issues at stake, as well as the pitfalls, uncertainties and major challenges. It will bring us towards general concerns relating to both a renewed emphasis on site formation processes, as well as discuss the postulate of human behavior as being meaningful.
This paper will give an overview of the practice of deposition in the area, and consider how variations in the material can be interpreted by applying a biographical approach in order to increase their interpretative value in studies of prehistoric deposition.

TH1-07 Abstract 03
Taming the Might of Bronze – Localisation of Bronze-Related Ritual Practises in Bronze Age Finland

Author: MA Saipo, Jarkko, University of Helsinki, Helsinki, Finland (Presenting author)
Keywords: Bronze Age Fennoscandia, Ritual archaeology, Structured deposition
Presentation Preference - Oral

The area of present-day Finland was a crossroads of Scandinavian and Russian bronze networks throughout the local Bronze Age (1900/1600-500 BCE). Even though the archaeological assemblage of Bronze Age bronze artefacts is not abundant in the area (numbering less than 200 specimens), relatively well-established relations to eastern and western bronze centres are indicated by both imported bronze objects (predominantly of Scythian origin) and local casting of Russian bronze artefact types. Interestingly, while many of the bronze object types encountered in Finland were obviously connected with long-distance networks, their deposition patterns appear highly localised even within the area of Finland. Celts and daggers seem to have been especially prone to change their roles when travelling between eastern and western or southern and northern Finland. Such regional differences are discernible not only in differential treatment and significance of specific artefact categories but also in general relations between bronze technology, mortuary rituals and ritualization of landscape. This paper suggests that local ritual practises of Stone Age origin had substantial impact on deposition patterns of bronze artefacts in Bronze Age Finland. Continued influence of Neolithic ritual frameworks may also have contributed to the general scarcity of bronze in the area throughout the Bronze Age.

TH1-07 Abstract 04
Early Bronze Age metalwork depositions in Denmark

Author: Viisäär, Marike, Leiden University, Faculty of Archaeology, Rotterdam, Netherlands (Presenting author)
Keywords: Denmark, Early Bronze Age, Metalwork depositions
Presentation Preference - Oral

Denmark is known for its rich, well-documented archaeological record dating to the Bronze Age. Metalwork has been found in bogs, on dry land and in burials. However, Denmark is a non-metalworking 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 offerings, 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, i.e., 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 in Central and Western Europe: a statistical and geographical approach

Author: Dr. Bittke, Hillegen, PARIS, France (Presenting author)
Keywords: Bronze Age, Hoards, social practice
Presentation Preference - Oral

During my PhD I was able to study and to characterise the hoard practice of five European regions during the Bronze Age. These areas were chosen according to their high number of hoards and their affiliations to different cultural complex or their strategic position. The study focused on: Western Carpathians, the Mittelelbe-Saale-Gebiet (central Germany), Denmark, the Burgundy doors (Switzerland, Eastern France, south-eastern Germany) and the Amurcan 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 to get a GIS has been developed for each region. 1555 hoards and 2776 single finds have been analysed.

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

Regional preferences have been observed in depositional contexts like in Denmark where a lot of hoards have been buried in swamps or like in the Burgundy doors which have a lot of merged single finds. The favourite objects are different from one region to another: axes in the Amurcan Massif and the MESG or weapons in Denmark and the Burgundy doors. In terms of composition, differences appear between the studied regions. Thus, the Amurcan Massif is the only one with a majority of one-type hoards and also with a majority of homogeneous hoards (objects from a unique cultural area). Hoards in domestic contexts could have been also a regional preference, as it is well known in Western Carpathians but rare in the Amurcan Massif and totally missing in Denmark.

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

TH1-07 Abstract 07
Oscillating Metal - comparing selective depositions and graves in the Bronze Age of Central Europe

Author: Dr. Neumann, Daniel, Frankfurt a. M., Germany (Presenting author)
Keywords: Bronze Age, Grave, Selective Deposition
Presentation Preference - Oral

The Bronze Age is characterized by a large amount of voluntarily deposited objects made from Bronze. This presentation will especially set the focus on similarities and differences between selective depositions and graves by comparing both from different angles and scales. As both archaeological features indicate social significance the examination of the regionally and chronologically changing patterns of deposition will reveal different strategies of social expression. Furthermore, the interplay between both, which is known from many areas of Europe enables us to contrast areas of diverging ritual practice by addressing the selection of objects as well as the varying quantity. This paper takes the pan-european development into account, but will mainly focus on data from Southern Central Europe which is an area – unlike others – that yielded bronze objects from graves and hoards as well.

TH1-07 Abstract 08
The selective deposition of metalwork: an introduction

Author: Nessel, Bianka, Institut für Geowissenschaften, Ruprecht-Karls-Universität, Heidelberg, Germany (Presenting author)
Keywords: Bronze tools, hoards, selective deposition
Presentation Preference - Oral

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

Fragmentation as a common feature in European Bronze Age hoarding

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

Keywords: Bronze Age, Deposition

Presentation Preference - Oral

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

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

TH1-07 Abstract 10

Places of deposition of metalwork assemblages in West Bohemia

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

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

Keywords: Bronze Age, Hoards, Landscape

Presentation Preference - Oral

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

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

Selective deposition in the Bronze Age: The territory of South Bohemia provided an important link between Danube valley and Central Bohemia in the Early Bronze Age. There are currently more than 80 hoards known from this area, a large part of them were discovered in the last two decades, thanks to a massive use of metal detectors. Not surprisingly, a number of hoards include cast copper ingots of various shapes, transported from the Alps to the north. Although copper ingots represented undoubtedly valuable items, thousands of them were deposited under the ground and never picked up again. In this presentation we are going to discuss possible interpretation of these hoards as votive offerings or merchant’s hoards. Attention will be paid also to the chronology and technology of artefacts found in Early Bronze Age hoards.

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

TH1-07 Abstract 12

Urnfield Period hoards in South Bohemia

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

Co-author(s) - Lill, Peter, University of South Bohemia, Ceske Budejovice, Czech Republic

Keywords: metalurgy, South Bohemia, Urnfield Period hoards

Presentation Preference - Oral

Not only in Czech archaeology, but also in other countries, the finds acquired by metal-detectors are the phenomenon of last decades. It also applies to metal hoards from the Late and Final Bronze Age (Urnfield Period), which are summarized in this presentation. The region of interest is South Bohemia, from where 23 metal-hoards from the Urnfield Period (i.e. Bz. C210 – Ha B3) were known 15 years ago. In the last years the number increased to 51 currently registered hoards. In comparison with the older finds, the most of new hoards are exactly located and in many cases documented in situ, which help us to interpret them, sometimes with the help of chemical and archaeobotanical methods. The new finds bringing extraordinary quantitative as well as qualitative enrichment of our knowledge of this Bronze Age phenomenon. Unfortunately only a (small) part of new metal-hoards are deposited in museum collections, while many others disappeared without any documentation in private collections.

TH1-07 Abstract 13

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

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

Keywords: Danube, deposition, swords

Presentation Preference - Oral

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

TH1-07 Abstract 14

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

Author - Šaveřenková, Věra, Hungarian Academy of Sciences, Budapest, Hungary

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

Keywords: Bronze Age, Carpathian Basin, selective deposition

Presentation Preference - Oral

The study of Bronze Age metalwork in Hungary has a long history; however, it has focussed mostly on typological and chronological issues, within a traditional cultural-historical interpretative framework. The famous hoards of the Hajdúszollos, Tolnánmedi contrasted by a limited number of small hoards, which are dominated by tools. This makes at least two general types of selective deposition of bronze tools obvious. The amount of bronze tools in large hoards with varied compositions are considerably smaller compared to other types of bronzes. Conversely, small hoards, which are dominated by tools, is a comparatively rare type of hoard. Tools made of other materials than bronze are seldom included in Bronze Age depositions. Other depositing practices were used for these items, which may also be understood as part of a pan-European phenomenon. This talk focuses on the question, if we can interpret hoards and other depositions of tools as the personal legacy of a person or a specific group of people such as craftsmen, or if it should be understood as part of a social event, where specific groups of people were invited to take part while others were excluded. How much can this pan-European distribution and composition pattern tell us about the structuring rules of depositions?
and Koszider ‘hoard horizons’ have provided ample material for such analyses. The turn towards a ritual interpretation of the deposition of metal in Bronze Age Europe has hardly been left in local scholarship. The aim of our paper is to change this situation and to analyze Middle Bronze Age metalwork from the Carpathian Basin from the point of view of selective deposition. We will highlight the patterns observable in the composition of these hoards and compare them with other depositional contexts such as graves and settlement finds. Based on these comparative analyses we will attempt to reconstruct various social practices that involve the removal of metal objects from circulation.

TH1-07 Abstract 15
Late Bronze Age metal deposition practices on the southern outskirts of the Carpathian Basin
Author: Hrovje, Katjafalul, Institute of Archaeology, Zagreb, Croatia (Presenting author)
Keywords: Carpathian Basin, Late Bronze Age, settlements
Presentation Preference: Oral

When attempting to study the cultural manifestations of the Bronze Age, it is necessary to point out that the development of metalurgy intensified new social practices such as depositing metal objects. The Carpathian Basin is a region with a high density of metalwork hoards present throughout all the phases of the Bronze Age. Its southern edges, the Sava and Drava River Basins, see the peak of bronze object deposition in the Late Bronze Age.

The Carpathian Basin in a region with a high density of metalwork hoards present throughout all the phases of the Bronze Age. Its southern edges, the Sava and Drava River Basins, see the peak of bronze object deposition in the Late Bronze Age. The earlier research of Late Bronze Age of the southern part of Carpathian Basin was almost exclusively focused on the phenomena of hoards, mostly observing such hoards as a feature separated from the communities that contemporaneously inhabited the area. This approach was the consequence of the fact that almost all available Late Bronze Age metal artifacts were found as parts of hoards, while at the same time context of such hoards and its relations to contemporaneous settlements and cemeteries is unclear. The main reason for this is the fact that a large number of hoards were found in time when archaeology was still developing discipline, so that context of find was not properly documented or even observed. In these circumstances the Late Bronze Age hoards were never studied as a part of the communities present, separated of its social and archaeological context. In the Croatian part of the Carpathian Basin the numerous rescue excavations have been done due to intensified development of state infrastructure. In the last 30 years these extensive rescue excavations revealed large number of the Late Bronze Age settlements and cemeteries. These excavations revealed that metalwork deposits in this period are commonly found inside settlements. Fine example of this is the site of Čepinčanski Marinčini Ostruva where a sword was found in the defense ditch near the settlement gate. This and similar finds open the possibility for the reinterpretation of previously excavated finds and for a more complex contextualization of metal object hoards deposited by Late Bronze Age communities.

TH1-07 Abstract 16
Hoards, burials, ornaments – selective depositions in Middle Bronze Age Hungary
Author: Dr. Kiss, Viktória, Research Centre for the Humanities, Hungarian Academy of Sciences, Budapest, Hungary (Presenting author)
Co-author(s): Berekczy, Péter, Miskolc University, Miskolc, Hungary
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Co-author(s): Szabó, Gábor, Wosinsky Móri Museum, Székesfehérvár, Hungary
Keywords: Bronze Age, hoards, selective depositions
Presentation Preference: Oral

The standardised structure of the content of the so-called Tolnánémedi 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 Tolnánémedi type hoards. According to former assumptions these hoards were connected to military actions (wars) or to rites of passage. However, recent results of burial practice analysis of the period suggest another model. We would like to present the reinterpretation of the mentioned hoards concerning the results of statistical analysis of the jewellery types from burials and hoards, examinations of the microstructure of metal finds, and the study of a recently found clay human figurine of the same period with the depictions of the ornaments concerned.

TH1-07 Abstract 17
Patterns of metalwork deposition during the LBA in the Lower Danube region
Author: Matal, Floria, Alexandru Ioan Cuza University, Iasi, Romania (Presenting author)
Keywords: deposition patterns, LBA, Lower Danube region
Presentation Preference: Oral

In this paper I address the distinctiveness of the metalwork deposition patterns traced in the Lower Danube region during the Late Bronze Age (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 artefact 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 Kamăk 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, Transcarpathian regional museum, Uzhgorod, Ukraine (Presenting author)
Keywords: Bronze Age, Metaldeposition, Ukraine
Presentation Preference: Oral

Characteristic feature of the European continent population in Bronze Age is metal works deposition in form of “hoards”. Upper Tisa Region (UTR) is one of the richest in Europe on the finds of “hoards” namely 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, Nisa ślub culture) the tradition of deposition was not continued. The Middle Bronze Age (BA2) is a new stage of hoarding in UTR. Culturally they belong to Ottoman-Füzesabony culture and early phase of Suciu de Sus culture. Geographically they belong to eastern part of UTR. The earliest hoards consists mainly of prestige objects (ornamented weapons and gold wares).

Author examines two versions of appearance of this phenomenon in UTR: 1) tradition of deposition arose up as a result of internal development of local Bronze Age society; 2) tradition of deposition arose up as a result of external contacts of local tribal elites. Development of this tradition continuing with maximal distribution in periods from BD-HaA1 (Suciu de Sus and Dava 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, ebbis and flows, metalwork
Presentation Preference: Oral

As the title of this session proposes, the deposition of metalwork is one of the defining characteristics of the European Bronze Age. Superficially, certain types of objects were seemingly deposited in similar ways across supra-regional areas, suggesting widely shared socio-ideological practices. Scratching below the surface, however, reveals a myriad of complex and competing traditions both across space and through time. In particular, regions rich in raw metal sources (e.g. copper, gold and silver) exhibit marked differences in depositional practices to those areas that lacked locally-available ores. This paper will draw upon a large relational database created for a research project on “Atlantic Europe in the Metal Ages” to highlight a few of the key patterns.
in metal depositional practices between 2800 and 800 BC. From Scotland in the north to Spain in the south, there is marked diversity, but also some striking similarities, in the nature and types of deposition. This will be demonstrated through focusing on specific artefact selections and associations, object biographies, contexts of deposition and their wider landscape relationships.

The extent to which transformations in metal deposition reflected the fluctuating and volatile nature of metal demand and supply throughout Atlantic Europe during the Bronze Age will also be considered. The intensification or fragmentation of networks of interaction had ramifications on metal 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 depositions in the broader Middle Rhine Valley**

**Author:** Autenrieth, Sabrina, Faculty of Archaeology, Leiden, Netherlands (Presenting author)

**Keywords:** Bronze Age, Deposition, Middle Rhine Valley

**Presentation Preference:** Oral

The Middle Rhine region is one of the best known examples of the excessive use of depositional practices of valuable objects in rivers. To understand this phenomenon, the focus 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-to-focus on river finds, but also reveal whether objects deposited in and lands represent a practice steered by ideas and motivations contrasting from those of river deposits. The aim of this research is to identify a potential cognoscible correspondence between the rise and fall of watery depositions and dry-land hoards and to reflect it communal 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. Waley, Leo, University of Bristol, Bristol, United Kingdom

**Keywords:** Bronze Age, Deposition, Metalworking

**Presentation Preference:** Oral

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

TH1-07 Abstract 23

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

**Author:** Kaila, Robert, University College London, London, United Kingdom (Presenting author)

**Keywords:** Bronze Age, Metalwork, spatial analysis

**Presentation Preference:** Oral

Selective deposition of Bronze Age metalwork in the British Isles is a well documented phenomenon which has been studied intensively by a number of researchers. Initial work focused primarily on establishing and refining typo-chronological frameworks based on patterns of association within hoards. With the realisation of the selective nature of Bronze Age depositions however, it became clear that the role of bronze extended beyond its value as a commodity buried for safe-keeping and storage, and that deposition was part of a long standing social practice represented in the archaeological record by buried metal objects. The landscape context where the structured depositions took place, must have been viewed as suitable for that purpose by individuals and communities involved in the act. As such we might expect to see an inherent structure in the depositional settings of metalwork, preserved by the topography and the relationship to environmental and cultural landscape features, exhibited by the finds spots.

Recognising these patterns has for the most part been a qualitative process, which relied on a visual assessment of the distributions; a difficult task considering the seemingly random distribution of most metalwork. In this context, identifying and evaluating any depositional patterns is best handled through the use of GIS and spatial analysis, which surprisingly has not been applied to the Bronze Age metalwork data in Britain. This paper explores the long term potential of wide scale application of multivariate logistic regression and Monte Carlo simulations to the distribution of Middle Bronze Age (c. 1500 - 1150 cal BC) metalwork, through a regional case study focused on the Isle of Wight. The aim is to establish whether any significant relationships between the findspots and their landscape settings can be identified, and if these varied between hoards and single finds. Focusing on a relatively small, naturally bounded region with a high density of Bronze Age finds, allows us to understand the suitability of spatial analysis to the data and questions at hand, and relate the structure of the data-set to cultural processes leading to deposition with a degree of confidence and subjectivity not afforded by qualitative research.

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

TH1-07 Abstract 24

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

**Author:** Professor Pearce, Mark, University of Nottingham, Nottingham, United Kingdom (Presenting author)

**Co-author(s):** Davis, Richard, University of Nottingham, Nottingham, United Kingdom

**Keywords:** Bronze Age Metalwork, River Trent, River Witham

**Presentation Preference:** Oral

In this paper we examine a specific example of selective deposition, Bronze Age Gewässerfunde from the River Trent, in the English East Midlands, as compared to the regional assemblage for Central England. The Trent has a major assemblage of more than 170 metal artefacts known from watery contexts. Most of the material dates to the Middle and Late Bronze Age, with fewer Early Bronze Age artefacts; it is weighted to high-status weapons, particularly from the Middle Bronze Age. Distinct clusters of finds can be noted, particularly in the section of the river close to Nottingham, where some 40% of items were found.

The river assemblage is dominated by weapons in contrast to the regional assemblage for Central England as a whole, which has different characteristics and is dominated by tools. The River Trent material also shows marked differences in character to the contemporary assemblage from the nearby River Witham, well known in the literature for the deposition of prehistoric metalwork. This is underscored, as the River Witham flows as close as 6 km to the River Trent. It has become a commonplace of the archaeological literature to argue that Gewässerfunde are the result of ritual behaviour. We argue that the special character of the River Trent metalwork, high prestige and male, and its contrasting nature compared to the regional assemblage, marks it out as special and that the most parsimonious explanation for its deposition is that it is indeed ritual in character, perhaps in the context of funerals, and that this behaviour was concentrated at a number of special places along the river.
**TH1-07 Abstract 25**

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

**Author:** Sampaio, H., Laboratório de Paisagens, Patrímônio e Território (Lab2pt), Guimarães, Portugal (Presenting author)

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**Keywords:** Agency, Metal hoards, Mirno

**Presentation Preference:** Oral

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 Iberian, specifically, in the Atlantic fringe of the North-western Portugal (between the basins of river Ave and Minho) during the Late Bronze Age. For that, it will be taken into account some of the regional available data, including in progress research, in order to verify some contingencies of such a complex past agency. Such a task will not only prioritize the different types of metal objects, their hypothetical biographical character and chronologies, but, specifically, and whenever possible, their micro and medium contexts of deposition, including recent contributions from fieldwork research. In a regional scale it is interesting to attest that some deposition preferences prevail.

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**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:** Caucasian, Hoards, Ritual practice

**Presentation Preference:** Oral

Hording metal objects is an important ritual practice during the Bronze Age, both in Europe and in the ancient Near East. Yet, context and places of depositions are entirely different. While in the European tradition, remote places near water bodies are preferred, metal objects in the Near East were predominantly deposited within ritual spaces, buildings or real sanctuaries. The Caucasian mountain range is the border between both traditions. The presentation will focus on the different ritual environments of hording 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.

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**TH1-07 Abstract 27**

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

**Author:** Qin, Cao, Oxford, United Kingdom (Presenting author)

**Keywords:** Bronze Age, China, metallwork

**Presentation Preference:** Oral

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

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**TH1-07 Abstract 28**

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

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**TH1-07 Abstract 29**

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

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**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 Gilareve, important new steps have been made to complete this gap. Excavations in Gilareve have provided the most precise data for solving important problems of the Bronze Age in Kosovo, as well as for the development of period as a whole. Two necropolises have been identified marked as Gilareve I and II. Both can be dated to the XV and XIV centuries BCE. So far, 48 grave constructions have been found, consisting of two types of burial practices: inhumation and cremation. Regarding the analogies and chronological determinations of the burial practices it is possible to conclude that inhumation, with or without stone constructions, is the older type of burial. The task of dating the graves with cremation was conducted through reference to urn fragments, specifically their handles, which can be placed in a broader chronological frame. Dating the graves with cremation can be done through reference to the other numerous finds, some of which have analogies in the larger geographical region, such as jewelry, weapons, and ceramics. The ceramic material also, which is quite exclusive and in particular the weaponry, attests to the high degree of knowledge of metal manufacture, production techniques, as well as decoration. The Gilareve necropolis shows that the Middle Bronze Age in Kosovo had a developed culture with significant influences from, and ties to, Mycenae, as an important social, economic, and political center. Swords, axes, and various types of knives point to the connections with production centers in Epirus and Albania from where the Mycenaean influence expanded through the Drin valley and Vardar Valley system. Excavations in Gilareve have also given evidence to the beginnings of a stratified society in the area, the formation of a ruling class, and the formation of the Illyrian Dardan “tribe” in the Central Balkans. Thusly, the Bronze Age in Kosovo becomes and important stage in the formation and development of Paleo-Balkan peoples, their culture and social organization. Their further development can be observed in the course of the following periods, specifically the Early and Late Iron Age in the first millennium BCE.

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**TH1-07 Abstract 30**

"Multiesential" concept in Early Iron Age offering contexts of Central Asia

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

**Presentation Preference:** Poster

“Multiesential” concept is a model of ancient population worldview. It was building on Iron Age archaeological sources from Central Asia, especially on so-called "offering" contexts.
TH1-08 Abstract 01

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

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 particularly applicable to the (Pleistocene) sandy soils, where poor preservation conditions enable quick and fairly straightforward documentation of postholes and other, mostly negative soil features. Over the years, numerous typologies have been built up which outline regional groundplan variations and their development through time. But this conventional typological approach has recently been criticised for not having moved beyond basic data classification. Theoretical interpretations, on the other hand, may be said to push our understanding of past peoples as they spent and shaped part of their lives in the protected space under the home roof. We seek a discussion on the archaeological evidence and the reconstructions of those spaces and how to maintain a sense of academic objectivity throughout the research process. Perhaps an even more ambitious question: through credible architectural reconstructions and our understanding of past home spaces, can we inspire the design of family architecture in a sustainable future?

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TH1-08 Abstract 02

Hands build a house but what makes a home?

Keywords: Household 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. Urns 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 to reconstruct the movements of the inhabitants, their movements in and out of the houses, and under and over the roofs, imagining smells and noises, evaluating human and animal promiscuity, differing uses of space during the snowy winters and hot summers, in an effort to analyse family and community life and spaces, commonality and privacy, and the sense of homeliness.

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TH1-08 Abstract 03

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

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

Presentation Preference: Oral

Kleinkein 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 Kleinkein. Since the publication of the tumulus cemetery by Claus Dobiat in the 1980s and the latest publication of the princely tumulus Kröllkogel by Markus Egg and Diether Kramer in 2013, the approximately 700 tumuli, which can still be found in the woods around the highest peak called the Burgstallkogel, stand in the centre of attention. The settlement on the plateau of the hill called Burgstallkogel was first researched by Walter Schmid in the beginning of the 20th century and later by Claus Dobiat, who excavated search-trenches on the top and on the northern terraces of Burgstallkogel in 1982 and 1984. They could very well date the settlement, but didn’t uncover any complete building remains or give insights into settlements 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 coinidence, 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 in a perfectly prepared terrace on the southern slope of the hill, was first opportunity to understand the architecture of the site. Since the building burned down, collapsed and no further buildings were erected on its remains, its remains are very well preserved and we have got the opportunity to get a first insight into the usage of interior space in a building of the Burgstallkogel settlement. A highlight was an almost completely preserved fire dog of a half moon shape, which was found in situ on the floor.

In my paper I would like to present the results of the analysis of the building remains from Burgstallkogel near Großklein, not only the building from 2015 but also the results from other parts of the settlement excavated in 2013 and 214, and put them into the context of the other building remains from Kleinkein(A)
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. Nauwela, Universtity 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 built-in byres.

Excellent preservation, also of pottery and bone, enabled not only a thorough investigation of the material culture, but also of ritual practice in this settlement. This investigation was carried out only recently, between 2011 and 2015.

This paper will present some of the results of the study of ritual practice. It will discuss the ways in which rituals were related to various stages of the lifecycle of a house: raising the house platform, building the house, living in it and finally abandoning the house. A conspicuous element of ritual practice was the burial of human remains in and near houses. It will be argued that burying the remains of deceased family members created ancestral grounds and also made people feel at home. Single inhumations and single 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 - Ekhorn, Susanna, SAU, Uppsala, Sweden (Presenting author)
Co-author(s) - Celin, Ulf, SAU, Uppsala, Sweden
Keywords: Building construction, Sunken floor hut, Viking age
Presentation Preference - Oral

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

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

Questions to dwell upon is how the inhabitants found themselves within these really small damp, constructions, some 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 it is to find out what actually took place within the four walls.

The paper will present a study upon the placement of entrances, building material and construction details. The houses within the study shows a great variation concerning construction and interior design details such as ovens, benches, loams, etc. another study deals with what activities that has taken place in the pithouses. Arceobotanical analysis combined with osteology and taph 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 Olaström, 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 dimm substitutes for the sort of illumination that we are used to today. Although this accurately reflects modern perceptions of medieval dwellings, it does not necessarily tell us much about the everyday experience of the people who actually lived in them.

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

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

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

Author - Magnusson, Reidar, Stiftelsen Kulturmiljövård, Upplands Väsby, Sweden (Presenting author)
Keywords: Interpretation, Late Bronze Age, Long-houses
Presentation Preference - Oral

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

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

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

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

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

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

Most of the Iron Age Houses in Southern Scandinavia shows an invariable construction that only allows minor differences in the architecture of the individual house. The houses are three-aisled, east west orientated and divided 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? This paper will present how architecture was used to express and manipulate identity and social groupings in the settlement, and discuss what the consequences of the “distorted” space within the house could have.
TH1-08 Abstract 09
At the hearth. Daily life, and domestic architecture in Early Iron Age farmsteads of Western Denmark
Author - Dr. Nygren, Nils Algoer, Museums of South West Jutland, Ribe, Denmark (Presenting author)
Keywords: Domestic activities, Iron Age, Settlement Archaeology
Presentation Preference - Oral

This paper will discuss the evidence of domestic activities in the Early Iron Age (500 BC - 150 AD) farmsteads of Western Denmark. The Danish evidence of daily life and domestic activities can roughly be divided into two: Evidence from well-preserved settlements with preserved cultural layers excavated in the 1920s to 1950s and evidence retrieved from settlements levelled out below modern day plough soil. The former has the advantage of in situ evidence of daily activities on the preserved floors while the later mainly benefits from the large amount of completely excavated farmsteads and macrofossil - as well as geochemical evidence collected on settlement excavations in the last 20 years.

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

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

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

TH1-08 Abstract 10
Charting the microstratigraphic life-cycle of an early Roman urban property, Roman Silchester, UK
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Keywords: Architecture, Soil Micromorphology, Urbanism
Presentation Preference - Oral

In Roman Britain, domestic urban properties are dynamic spaces with constantly evolving architectural forms. The evidence for super-structure components can often be ephemeral as these properties have timber or earthen walls, which are frequently truncated by later building foundations or, as observed at Roman Silchester, by the trenches of Antiquarian excavators. Previous research at Silchester has integrated thin-section micromorphology and experimental archaeology to characterise sediments and occupation deposits to identify doorways robbed, semi-robbed, and open spaces within the properties in order to understand their architectural form.

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

The application of a spatial and diachronic microstratigraphic approach presents the opportunity to examine, at high resolution, the finer details of the daily lives of its inhabitants. In particular, this paper will examine how did the inhabitants structure their space? Were there divisions of craft and domestic activities? Early Roman structures at Silchester and elsewhere in Roman Britain are frequently single-roomed structures with central hearths. This is arguably a continuation of single-roofed Iron Age architecture. How does the architectural form of early Roman timber building 8 adapt and deviate from this model? Are changes due to a process of acculturation?
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 that there are some post 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 - McCullagh, Rodierick, Historic Environment Scotland, Edinburgh, United Kingdom (Presenting author)
Keywords: architecture, evidence, reconstruction
Presentation Preference - Oral
Taking inspiration from the recent discovery of “painted” walls on Neolithic buildings at two sites in Orkney, this paper argues that buildings could be “traditional” and functional but on occasion, exuberant. A casual view of the reconstructed architecture of the Thule would show a harmonious 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 gabled-hairstyle of the bog-body from Clonycavan to metate-work masterpieces such as the Monyusk casket, and to ornate sculpture, such as Forteviot arch, we have evidence that in some circumstances, builders, designers and craftspeople stepped far beyond what mere practicality demanded to create visually stunning artefacts. By presenting examples of buildings that seem to depart from the norm and that express a spirit of experimentalism, such as the early Christian church at Whithorn, this paper will seek to stimulate a discussion on how 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 - Khristalava, 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, the activities 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 depended on the social and demographic factors: the level of development, the structure and number of communities.

Identification and justification of the constructions 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 layer 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 calidred 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 recessed floors (if any) or due the posts and postholes and their strengthening structures (stone), as well as the remains of hearths. These data, when interpreting archaeological and ethnographic analogues, 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. Dikomou, Artemios, University of Nottingham, Nottingham, United Kingdom (Presenting author)
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Co-author(s) - Shewry, Simon, University of Nottingham, Nottingham, United Kingdom
Keywords: Epirus, Greece, Hallenstic 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 Dodonais and his wife Dione. According to ancient Greek tradition it is considered to be the oldest oracle in ancient Greek world. Archaeological evidence has confirmed continuous habitation from the Bronze Age (2800-1100 BC) to the end of the 4th c. AD. The Dodona Sanctuary flourished during the Hellenistic period and especially during the reign of King Pyrrhus when major reconstruction works took place. The Dodona Sanctuary played an important role as a political, administrative and religious centre during that period and its relationship with regions outside Greece, like Alexandria in Egypt, is well attested both archaeologically and historically.

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

Here we present results 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 (core formed vessels, ribbed bowls, cast bowls, conical engraved bowls) of a variety of colours (deep blue, green, amber, colourless).

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

So far, lapoican 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 techniques, their abundance in graves, and to 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 grit, 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 lapoic group. Although the lapoics were importing glass from their well-known glass-producing neighbours of the Lower Carniola group, they still held on to this particular type of bead.

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

Bibliography:


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

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

TH1-09 Abstract 08
The Irish Glass Toggle: Exploring the function of an enigmatic Iron Age ornament
Author - Jordan, Alexis
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Keywords: glass, Ireland, Iron Age
Presentation Preference - Oral
The study of personal ornaments in the European Iron Age has long been a fruitful avenue of research for archaeologists wishing to explore topics such as social status, identity, technology, and trade. As portable pieces that can be reliably sourced and serve as stylistic, temporal, and social markers, beads reflect larger patterns of social interaction and communication especially during periods characterized by significant change and increasing mobility. In the Irish Iron Age, the systematic study of 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 distinguishing 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.

TH1-09 Abstract 09
Romano-British glass bracelets: where La Tène Continental technology meets Iron-Age British design
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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 their production technique compared to bracelets made on the Continent. The start of the production of the seamless glass annulus in Britain corresponds with the decrease in the circulation of these glass adorns on the Continent. In the late first century BC, the Continental glass bracelets gradually stopped being produced, yet the craft reappeared in Britain, which had no history of glass bracelets’ production prior to the Roman invasion of Britain in AD 43. The presentation attempts to answer the question as to where the inspiration and skills for the British glass bracelets came from by discussing their production technique. The experiments conducted with the modern glassmakers and the close-inspection of the British glass bracelet fragments reveal that the British annulars were most likely produced in the similar manner as some of the La Tène Continental bracelet types, that is in a technique similar to that suggested by Joelle Rolland for some Continental types. However, the design of the Continental bracelets is rather different from the Continental ones. Most British annulars have either twisted cord decorations or talks 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.

This 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.

TH1-09 Abstract 10
Analysing a material ‘culture clash’: sealing wax red glass in Late Iron Age Britain
Author - Dr. Davis, Mary
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Keywords: Britain, glass, Late Iron Age
Presentation Preference - Oral
This paper will present work carried out on the analysis of Insular Late La Tène and Early Romano-British ‘sealing wax’ red glass. This was used principally as an inlay on high status decorative bronze work, which developed from the earlier La Tène traditions in both Europe and Britain of using opaque red ‘sealing wax’ glass to decorate metal artefacts. In late Iron Age Britain (1st century AD), the use of inlaid red glass flourished on objects exhibiting ‘Celtic’ styles and from regions in Britain resistant to Roman occupation. The quantity of this type of material produced was also significantly greater than in previous periods. During the first century AD, in much of the Romanised world, the composition of red glass changed significantly from the high lead high copper ‘sealing wax’ type used in the Middle Iron Age and Continental La Tène pieces to the low lead, low copper red glass produced for Roman mosaics and probably exported as tesserae or rods. However, within Britain the use of ‘sealing wax’ red glass was retained, but was of a slightly altered composition to the majority used within the ‘Celtic’ world; one principle difference was a significant increase in antimony. Although not used for previous La Tène glass, there are a few examples of similar high antimony ‘sealing wax’ red glasses noted within the southern Mediterranean: as re-used glass vessel fragments in early mosaics in ‘nymphaea’ in southern Italy, in Hellenistic red glass and in red glass from Jerusalem.
Antimony was used in small quantities as a decolourant in clear glass; its addition in larger quantities in ‘sealing wax’ red glass was advantageous in several ways: it replaced iron as an internal reducing agent, produced a brighter red colour, and acted as a fluxing agent. However, antimony ores are relatively rare in Britain, and there is no evidence these were exploited.
Comprehensively, antimony was available in the form of lead antimonite, for which there were ancient and extensive trade networks. This was used as a yellow pigment and a colourant in glass. Yellow beads from the Middle and Late Iron Age in Britain were usually coloured using lead antimonite, and tesserae continued to be coloured with this material in the Romano-British period.
One hypothesis for the prevalence of this distinctive composition of red glass in Britain is that yellow glass was converted to red by the addition of copper (and lead): metals readily available in Britain. If yellow glass is heated, lead and antimony can escape, the subsequent addition of copper (and lead), plus careful cooling in reducing conditions, could result in the production of red glass. This would account for the levels of antimony in Late Iron Age red glass, for the change in technology, and for the increase in the use of red inlays. Theoretical amounts of copper and lead can be added to the composition of analysed yellow glass to achieve results similar to those of analysed red sealing wax glass from Britain.
SANDWICH-GOLD GLASS: ELITIST GLASS PRODUCTION IN HELLENISTIC MEDITERRANEAN

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Keywords: Hellenistic glass, Mediterranean, Sandwich gold glass

Presentation Preference: Poster

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

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

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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 (813C) and nitrogen (815N) 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; Bondi et al. 2004), whereas the analysis of sulphur (33S) has suggested that there were significant inter- and intra-site variations in dietary practices (Nelich 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 (cyprinids, 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 specialized fishing centres, and held different species of fish in special regard.

Use of beavers and bone industry in the Late Mesolithic – Caspian Sea region

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Keywords: Mesolithic, archaeozoological remains, food refuse

Presentation Preference - Oral

The first study of the archaeozoological remains from locorna was made 40 years ago by Alexandra Bolotsy. The importance of this settlement led us to re-examine all the faunal material using methods such as slaughtering curves, ageing and sexing, biometry, cut marks, butchery patterns and palaeogenetics. This has resulted in a new interpretation of the local fauna and of Mesolithic hunting activities. All the remains are interpreted as food refuse, with high fragmentation ratios. The list of taxa identified includes molusca (11 species), fishes (7), reptiles (5) and mammals (16). The assemblage is dominated (93.5%) by wild mammals, with over 4300 identifiable specimens. Sus scrofa (wild boar) dominates, followed by Cervecus elaphus (red deer) and Capreolus capreolus (roe deer). By weight, deer remains are the most important, followed by wild boar. Other taxa represented are Rucervus nipicipus capreolus (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 Mesolithic levels at Lepenski Vir, Vlasac and Padina.

Icoana revisited: an archaeozoological perspective

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Presentation Preference - Oral

There are solitary records of turtles. The only domestic animal was dog. Hunting and fishing took place all year round. Hunters increased further around 5500 cal BC and aurochs and tarpan started to appear in the north Caspian Sea region. But their hunting percentage is low. The number of sites decreased at that time, and the proportion of wild animal bones also decreased. A hunting crisis began to emerge. Hunting of onager and saiga antelope in the Low Povolzhye was decreasing around 5000 cal BC, and hunting tapan and aurochs strongly decreased. This was due to changes in livestock husbandry. There was a shift from hunting to cattle breeding. Bones of domestic sheep and goats from this period were found on the sites of the Caspian Sea region culture (in the north Caspian Sea region and in the Povolzhye steppes). According to the Khvalynsk culture material (4700-4500 cal BC), hunting of aurochs and tarpan and tapan decreased 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.

Early Neolithic site of Zamostje 2

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Presentation Preference - Oral

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Th1-10 Abstract 07

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

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Keywords: bone technology, Early Neolithic, osseous raw materials

Presentation Preference: Oral

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

Th1-10 Abstract 08

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

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Keywords: bone technology, Early Neolithic, osseous raw materials

Presentation Preference: Oral

The contribution of animal domestication to the socio-economic changes in the Iberian Peninsula during the spread of the Neolithic in the first half of the Holocene is indisputable. Animal domestication was a transcendental turning point in the management of animal resources. Among the domesticated species, pigs were an important food source. However, it is difficult to discriminate between domestic (Sus domesticus) and wild (Sus scrofa) species in the faunal assemblages of this period. Several methodological approaches have been applied to address this issue, the most common being based on morphological and biometric criteria. Stable isotope analysis of bone remains can also provide valuable insights into human–faunal interactions, while offering new perspectives on animal domestication. Here we present the results of an integrated study involving carbon and nitrogen stable isotope, 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 Sus scrofa was substantially modified by Neolithic societies in the northeast Iberian Peninsula. We interpret this change as a result of the new selective pressures to which the wild species were submitted by humans during their domestication. The impact of this change on management strategies is also assessed, taking into account the different work processes and social relationships involved in the management of this resource.

Th1-10 Abstract 09

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

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

Presentation Preference: Oral

Aurochs played a role from the very beginning of neolithization in the Central Balkans, unlike in southern Europe, where sheep and goat, mostly for environmental reasons, preceded and subsequently kept their key position in animal husbandry. As genetic evidence suggests, aurochs was introduced to Europe from its initial centres of domestication in the Near East. However, incidences of local domestication cannot be completely ruled out, and, even more so, hybridization of domestic stock with wild progenitors. In order to understand whether these processes ever happened, data on the distribution of the wild ancestor of cattle in the region are important, as well as its features observed from skeletal remains and archaeological contexts of discovery. Although scarce, aurochs were present in the Central Balkans during the Late Pleistocene, as can be judged from the faunal remains from Palaeolithic sites and alluvial deposits. The steppe bison, another large bovid of comparable size and ethology, was more frequent. Its prevalence is documented both by the number of sites where its presence has been confirmed, and by the ratio of bison and aurochs remains at sites where both species were found. Steppe bison became globally extinct toward the end of the Pleistocene, although the more precise timing of its disappearance in the region is not known. It can be hypothesized that aurochs consequently became more numerous and substituted bison in an empty niche, but there is also a lack of data on the presence of aurochs at the end of the Last Glacial and the beginning of Holocene. The remains of aurochs from Pleistocene alluvial deposits mainly consist of cranial parts, whereas those from Palaeolithic sites include scattered bone fragments and teeth, which makes it largely impossible to determine whether they accumulated as prey of human hunters or large animal predators. The earliest occurrence of contextualized aurochs remains is a partial skeleton discovered in a Mesolithic layer at Velensa in the Danube Gorges. The procesing of animal carcass is evident from the butchering marks on the articulated neck vertebra. During the Mesolithic, aurochs remains are scarce at other sites in the Danube Gorges and other parts of the Central Balkans. In the Neolithic, the remains of aurochs become a regular element of the animal bone refuse, but mostly in modest proportions; thus, the presence of aurochs was not high. Nevertheless, owing to its cognation to domestic cattle, potential local domestication trials and hybridization, or solely to its impressive appearance, the significant symbolic role of this large bovid, one that is going to endure throughout prehistory, was probably established already at the onset of the Neolithic. In this respect, the sudden and synchronous appearance of aurochs remains made from aurochs metatarsal bones in the Central Balkans, as well as within the large area stretching from Anatolia to Pannonian plain and Carpathian Mountains is intriguing.

Th1-10 Abstract 10

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

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Keywords: Copper Age, fishing, Romania

Presentation Preference: Oral

The Chalcolithic period (5th millennium cal BC) in the area of the Lower Danube River is of particular interest for archaeologists because of evidence of very early metallurgy, incipient social stratification, and (at many sites) a renaissance in the exploitation of wild animals in the subsistence economy (although domesticated animals continue to be important). Since 2002, excavations at the hill near Pietrelae, Romania (on the floodplain of the Danube River) have produced abundant evidence of the exploitation of fish and other aquatic animals both in the form of faunal remains and some of the technologies used to procure them. Although examples of very large catfish and cyprinids are common in the assemblage, wet sieving of soil samples has also revealed the presence of numerous bones from very small fishes - indicating a very intensive exploitation of aquatic resources by the site's occupants. Understanding the fishery is essential to understanding how the settlement was provisioned and to questioning why wild resources once again became so important at some locations during the Copper Age.
TH1-11 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 late Merovingian and Carolingian emporia, an interpretation mainly based on the substantial number of coins collected on the eroding beach by 19th-century antiquarians. However, a review of the full range of evidence makes clear that this emporium did not emerge out of nothing, situated near a Roman temple, the site probably continued to function as a cult site throughout the Early Middle Ages and derived some of its early significance as a trading site from this. Similarly, the site's full history is only evident once the hallmark of Carolingian rule, the finding of a cross hoard in the middle of the 9th century, has been neglected. Previously, it was thought that the site was abandoned in the latter half of the 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 of the nearby ringfort of Domburg. Previously for the port was thought of as a successor to Walichrum, the refuge of the latter's inhabitants in the politically unstable post-Carolingian period.
Thanks to new research the fort area now emerges as an integral part of Walichrum from the 7th or 8th century onwards, long before the construction of the fort in the third quarter of the 9th century.
This paper will trace the life trajectory of Walichrum, with special attention to these hitherto overlooked early and late phases. The developments on the site will be framed in wider discussions of landing places and urban settlements in northwestern Europe. This will be done in reference to the dynamic coastal landscape in which this site was located, which during the period under consideration developed from a remote barrier island in the Scheldt estuary, backed by an intransitable tidal marsh, to the dune belt of a large island rich in sheep-grazing grounds. It will be argued that the site's occupation history, in particular its final phase and ultimate disappearance, was determined to a large part by regional socio-political developments, in turn tied to much broader cultural and political changes in the North Sea area.

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 these towns' dynamics over generations of town dwellers has often not been addressed, while these changes are the key to a multi-faceted understanding of the daily lives of the inhabitants, and how these may have changed over time. The complex nature of urban deposits has in some cases prompted excavation using a random division in spits, while an opposite reflex is necessary to produce a clearer phasing of each separate case. Before comparisons are made, the individual life trajectory of each town should be understood to its fullest. This paper examines how 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 Hedeby 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 homogenous deposits, so-called dark earths. The latter often occur precisely at the beginning and perceived end of early medieval towns, making their interpretation a challenging endeavour. Not every layer of movement 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 interpretive value, and, if integrated into the research project design from the very beginning, provides a way to contextualise the enormous amounts of material these sites produce.
Changing Places: a comparative discussion of London and Tours in the Early Medieval Period

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

A Subversive Urbanism: Venice in the 9th century

How did Venice’s urban form look in the 9th century?

Venice differs from its own legends. The materiality of the rising Venice has been generally perceived as sites without time and space, where a fully established myth describes the origin of the city. The Venetian lagoon, in fact, was the place where the noble Romans sought refuge from the barbarian hordes: they had been forced to move to uninviting islands among the marshes 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 uncovered wood structures of the early medieval houses, for example, have been described as a poor reaction to a sudden and massive alienation 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 expository, 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 islets in order to control both the maritime and the riverine sailing routes. Artisanal productions (glass goblets, parchments, metal crafts) were not subsistence economies; the emporia layout of the sites allowed the circulation of raw materials, techniques and skilled people.

Venice was a proto-capitalistic society. 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 it considered in the counter light of the fluid social negations that took place around a very specific environment, creating polylocal sites, which will be cities in the following years.

How and when Venice became Venice. Framing the urban development of a trading town in Italy

The origins of urbanization in the forest-steppe zone of Western Siberia

The origins of urbanization in the forest-steppe zone of Western Siberia should be associated with the formation of ancient fortified settlements – fortresses that 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. The increase in the number of fortified settlements was greater in the transition period from bronze to iron (the 2nd quarter of the 1st millennium BC). They were round-oval in shape towns with area up to 4 hectares. There weremajor suburbs around them. The citadels of the time were poorly 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 their cultural traditions within phratry. In the early Iron Age the middle of the 1st millennium AD, the number of settlements increases. In the forest-steppe zone of Trans-Urals their number more than 100. One-third of excavated settlements are multicultural, from 15 to 20 fortified settlements belonged to carriers of different traditions. Within this period the dynamics of fortification is well traced. Fortification of early stage continue the tradition of the transition from bronze to iron time. Archaeologically they are fixed in the form of small grooves on the perimeter, holes for posts, charcoal and traces of burnt wooden structures in the embankment of the earthen rampart. They are reconstructed as a hedge of stockade fence around the residential area. Most of them could not perform a defensive function. Already at that time there is specialization of fortified settlements as centers of metalworking, import, exchange, cooperation of multicultural population. In 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, craters, towers and surrounding ditches are increased. There is not only a general tendency to strengthen the fortifications, but also to the complexity of their structure: double-, triple area settlements are emerging. The search for new forms, combinations of known elements and structures to enhance the overall defensive capability is noted. The material of some fortresses take elements of Chinese and Central Asian origin indicating them as centers of trade and exchange. The fortresses became the centers of origin and transmission of cultural innovation, and the process of urbanization and the resulting changes in the ancient and medieval societies to the greatest extent determined the development of the region.
TH1-11 Abstract 08

The early urban development in the steppes

Author - Dr. Habil. Ochir-Goryaeva, Institute of archaeology Tatarstan academy of sciences, Kazan, Russian Federation (Presenting author)
Co-author(s) - Dr. Habil. Pulkina, A. Institute of archaeology Tatarstan academy of sciences, Kazan, Russian Federation
Keywords: Chasarian Kaganat, steppes, urban development
Presentation Preference - Oral

The earliest urban sites in the East European steppe date to the Early Medieval Epoch and, in particular, to the time of the Chasarian Kaganat (from the 7th to the 9th cc). So far their number has been limited to several, now famous, urban developments located along the Don river such as Sartel-Belaya Vezha, Pravobreznchye Taimyrskoye gorodishche (urban development), and Semikarakorskoye gorodishche. Numerous urban developments in the adjacent areas of the foreststeppe Podonie (the Don basin valley) and Prilomnoye (the Donets basin valley) dating to the Chasarian epoch are representative of the material culture of the Don Alan, Bulgar, Oguz, Pecheneg, and Slavs. Those of the Crimea and the Northern Caucasus associate with the culture of local sedentary populations who were agrarians. Only those sites that are located along the Don and the Volga belonged to the Chasarian Kaganat proper, hence it is these urban developments that can be related to ethnic Chasarians. The last decades saw simultaneous discoveries of several sites of the Chasarian Kaganat in the Volga-Don steppes. In the late 1990s at a kilometer distance from the Pravobreznchye Taimyrskoye gorodishche an urban development was opened, which contained the ruins of a fortress wall of white lime stone. One of the stone blocks displayed a tamp a of a typically Chasarian shape. The new fortress got the designation of Sartel-3 as a part of the whole agglomeration complex that includes also Sartel and Pravobreznchye Taimyrskoye urban developments. At the same time a Chasarian epoch tower layer was opened under the layers of the Golden Horde urban center on the site at the village of Samosdelka in the Volga estuary. According to the archaeologists that led the excavations, the geographical position and the character of the constructions of the Samosdelka lower layer suggest that these may be the remnants of the town of Itil. In 2008 followed the opening of the Bashanta gorodishche that contained the ruins of constructions made of white clay shell stone and tile fragments parallel to those found in late Chersonese on the Crimean peninsula (Jacobson, 1958, 1964). One of the stone blocks also had a tamp a out in it. According to two radiocarbon dates (622-655 at 68.3% and 600-662 at 95.4%) and (672, 782 at 96 %), resulting from the analysis carried out by Leibnitz Laboratory of the Kiel University, the Bashanta turns out to be the earliest of the urban developments in the East European steppes dating to the time of the Chasarian Kaganat. The excavations of 2000-2005 of a number of late medieval urban centers and developments in the Lower Volga, undertaken by the Khablov Institute of Archeology of the Tataristan Academy of Sciences, resulted in discovering cultural layers dating to the Medieval epoch. As a number of the recovered finds show that the beginning of the time of the development of urban centers in the Chasarian Kaganat. Thus, further effort along the lines will contribute to an understanding of early medieval urbanism in the archology of Europe.

TH1-11 Abstract 09

Viking age settlement networks

and the rise of the early urban centers on the Upper Volga

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

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

Most important elements of this network were the -large unfortified settlements- extensive unfortified sites or site clusters, with the area from 4 to 10 hectares. Large unfortified settlements produce evidence of trade, craft production and agricultural activities, as well as of prosperity and high social status of a number of the settlers. Suzdal town, known from the written sources as the main urban center in the region, became noticeable only in the 13th century. There is no evidence of its social and political importance in the X-XII century. The rise of Suzdal town didn’t lead to the collapse or decay of the -large settlements-. Most of them produce evidence of development and prosperity in the X-XII cc.

TH1-11 Abstract 10

Viking winter camps: towns on the move?

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

This paper will contribute to the debate about urban origins through exploration of the new archaeological evidence from the camps at which Viking armies were based during the period of raiding in the ninth century. Since they were evidently occupied for only a number of months, they do not accord with the definitions of urbanism that we have been accustomed to adopting. Yet in most other respects it is now difficult to deny their urban attributes. In particular, discussion will focus on the evidence from Torvey (Uinotsilin), where the Viking ‘Great Army’ is recorded as having spent the winter of 872-3. Recent archaeological investigation has illuminated the nature of this site, which is considerably larger and more complex than hitherto suspected. It has yielded evidence for trade (in the forms of bullion, weights and coinage), manufacturing (including the processing of precious metals, smithing and textile working), minting of coins (in the forms of imitations of local currency), and religious practice and burial. The site has undoubted urban attributes, but can we really conceive of a ‘town’ as a mobile enterprise? And, if so, how do we envisage that the community supported itself? The archaeological evidence from the winter camps at both Torvey and elsewhere, not only challenges definitions, but it also prompts us to look at a new range of sites in our analysis of the development of urban settlements, since the winter camps did not develop in any direct way into the towns of the later Anglo-Scaxon and medieval periods. They are physically unrelated, albeit connected in terms of the range of activities undertaken on them. The scale of the winter camps as we now understand them suggest that they housed unusually large concentrations of people, and may have given many of the members of the Viking armies their first experiences of urban living; they may also have provided a similar introduction to urban life for many of the communities in the regions where they were established. The newly emerging archaeology of Viking winter camps makes a novel, and as yet largely untapped, contribution to debates about urban development.
TH1-11 Abstract 14

Hot beds? Manure pits in medieval Ackerbürgerstädte

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

Keywords: Medieval, Trade

Presentation Preference - Oral

TH1-11 Abstract 13

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

Author - Prof. Ólafur Ólafsson, Orr, University of Iceland, Reykjavik, Iceland (Presenting author)
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Co-author(s) - Gisladóttir, Gudrun, Institute of Archaeology, Iceland, Reykjavik, Iceland

Keywords: Iceland, Medieval, Trade

Presentation Preference - Oral

Gásir 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.

The paper discusses the evidence unearthed at Gásir and places it in the context of social and economic organization in the medieval North Atlantic.

TH1-11 Abstract 15

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

Author - Dr. Nicosia, Cristiano, Université Libre de Bruxelles, Bruxelles, Belgium (Presenting author)
Co-author(s) - Devois, Y., Vrydaghs, L., Degraeve, A., Feccher, K., 2009. An interdisciplinary approach has been developed to study these dark earths, involving not only historical research and archaeology, but also geoarchaeological (including soil micromorphology and physico-chemical analyses) and archaeobotanical studies. These studies highlight that several human activities can be hidden behind complex formation processes, some related to the development of an agric-pastoral system (Devos et al., 2009; 2011; 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:


Devois, Y., Vrydaghs, L., Degraeve, A., Feccher, K., 2009. An interdisciplinary approach has been developed to study these dark earths, involving not only historical research and archaeology, but also geoarchaeological (including soil micromorphology and physico-chemical analyses) and archaeobotanical studies. These studies highlight that several human activities can be hidden behind complex formation processes, some related to the development of an agric-pastoral system (Devos et al., 2009; 2011; 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.

Keywords: Medieval, Trade

Presentation Preference - Oral

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, Trade

Presentation Preference - Oral

Historical texts dating from the seventeenth and eighteenth centuries describe a method of hot beds that might help explain the manure pits. Horse manure was spread on the bottom, and once fermentation had begun, a layer of soil was spread on the steaming manure, ready to be planted with cucumber, radish and melon. The heat produced by the manure guaranteed that vegetables could be planted months earlier than if a hotbed had not been used, and then also harvested earlier.

The main question in this presentation is whether archaeological manure pits can be designated as hot beds. If so, this would reveal a form of urban market gardens. The preliminary results of the multi-disciplinary manure pits research group will be presented.
This paper will discuss how to understand the early development of Odense seen through the archaeological record. Is it possible to see if, how and when the town transformed from agrarian to urban during the 11th to 16th Century? Until now the evidence in Odense and Jutland’s rich history of Odense has mainly been based on the sparse remains of a Viking Age ring fortress and within sources testifying to Odense as a place of significance from around 1000 CE. Recent large-scale excavations have offered the opportunity to study this early phase of the town from an archaeological point of view emphasizing the physical remains and change in use of space.

Up to several meters of well-preserved stratigraphy were excavated applying a strictly managed contextual method, reflective interpretation of the formation of the cultural deposits and sampling for macro botanical, zooarchaeological and environmental analyses. With an extensive finds assemblage and well-preserved structures such as boathouses, houses 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**

**Craftspeople in emporia - the original cast.**

**Non-ferrous metalworkers in eighth century Ribe**

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

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

**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 interpretations are offered as a result. The show that the workshop produced a range of items including bits for horse harness, boxes, decorative locs 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 urban type emerged in ports with privileged economic potential and political reach.

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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 early urban settings or the “central places” pre-dating these. Furthermore, the presence of complex metalcraftsmanship has been used as a driving indicator of the political, social and economic superiority of certain sites, thereby entrancing 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 Amvil” 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 thematic aim in the project is to elucidate the conceptual aspects of complex metalworking. The term “multimetality” is used to analytically frame all the societal and economic aspects of multimetal craftsmanship. Through this inclusive perspective both the craftsmanship and the metalworkers behind it are positioned within the overall socio-economic framework. The metalworkers, their skills and competences as well as the products of their labour are viewed as dynamic actors in the landscape and on the areas 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 multimetality as part of an “urban conceptual package” is crucial to investigate. Such an approach will have the dual ends of properly understanding the craft and its societal implications, but also further the knowledge of the phenomenon of urbanity as a whole. Was multimetal smithing part of an “urban package” that spread into the rural landscape? Did the multimetality 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 multimetality within the “urban package” and discuss the role of complex metalworking in the establishment of urban areas of interaction in Late Iron Age Scandinavia.

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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, Arosen, Denmark (Presenting author)

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

**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 Aarhus harbor, the largest of the Danish ring fortresses, was erected at the centre of the Limfjord region; and at approximately the same time the first activity is traceable at what was to become the capital of the region, the town of Aalborg, close to the eastern exit of the fjord. In addition to this, large metal-rich settlements are situated on every hill by the fjord – a dense system of villages that were presumably led by local magnates. However, despite clear signs of high economic activity and increased specialization of some crafts, there is little evidence of a regional settlement hierarchy and centralization prior to the existence of Aalborg and the urban development at Aalborg; and parallel to the growth of the latter, activity seems to increase in most of the neighbouring coastal villages. The general impression left by the archaeological record is one of a remarkable regional productivity during most of the first millennium AD and during the following centuries too. By this paper the basis of the socioeconomic development of the region and to seek to illuminate the development of 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** - PhD Jensen, Mads Dørgb, 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 architectural structures and by being topographically interwoven with the more elaborate agenda of the (local) aristocracy. This paper discusses the socioeconomic development of the region and seeks to illuminate the development of 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 21**

**The Topic of Commercial Control and the Early Development of Odense**

**Author** - Dr. Krüger, Carsten, Aarhus University, Arosen, Denmark (Presenting author)

**Co-author(s)** - Tarp, Per, Aarhus University, Arosen, Denmark

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

**Presentation Preference**: Oral

The topic of commercial control and what type of influence the aristocracy had on the early development on these types of settlements is used 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 multimetality 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 multimetality within the “urban package” and discuss the role of complex metalworking in the establishment of urban areas of interaction in Late Iron Age Scandinavia.

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**TH1-11 Abstract 22**

**Interpreting the Archaeological Record**

**s, Jutland (Denmark), will be presented as case in point, and the special features**

**jbjerg, Denmark**

**National Museum of Denmark, Kbh. K, Denmark (Presenting author)**

**Co-author(s)** - Croix, Sarah, Aarhus University, Højbjerg, Denmark

**Keywords**: 3D laser scanning, Crafts, Urbanism

**Presentation Preference**: Oral

Interpreting the Archaeological Record

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 multimetality as part of an “urban conceptual package” is crucial to investigate. Such an approach will have the dual ends of properly understanding the craft and its societal implications, but also further the knowledge of the phenomenon of urbanity as a whole. Was multimetal smithing part of an “urban package” that spread into the rural landscape? Did the multimetality 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 multimetality within the “urban package” and discuss the role of complex metalworking in the establishment of urban areas of interaction in Late Iron Age Scandinavia.
TH1-11 Abstract 21
Production and Distribution networks in the Diocese of Tuam, West of Ireland, AD 500-1000
Author: Tige, 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 Doonoughou, a coastal site where exchange happened in the eighth century. The primary mode of the production of crops is thought to have been by buying in the grain, as there is a lack of evidence for on-site production with the grain samples excavated being entirely free of chaff. The site, and possibility others like it were not permanently used, but seems to have been occupied between late spring and early autumn, the very same as the main 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 that 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 Cualhalg, similar sites, and possibly others like it have long been thought to have been used in a similar way. The role of the church in providing centres of production and manufacture cannot be doubted, especially in the unstable and fragmented political milieu of early medieval Ireland.

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

TH1-11 Abstract 22
Early medieval urban life in the Low Countries before the 10th-11th c.: approaches and problems
Author: Professor Dries Tys, Vrije Universiteit Brussel, Brussels, Belgium (Presenting author)
Keywords: diversity, Low Countries, Research
Presentation Preference - Oral

The Low Countries were together with Northern Italy the most heavily urbanized regions of the medieval world. The origin and understanding of this phenomenon has been debated in a long and impressive historiographical debate, involving famous scholars like Pierrone, Weinberg, Verhulst and others. Today we agree that the take-off of the successful towns can be related to the organisation and stimulus of trade in the context of power in the 10th and 11th centuries. The debate remains however on how to understand the evolution and character of the urban phenomenon before the 10th-11th century. This debate will always tend to suffer from both teleological thinking towards the road of success and the stress on the question of continuity between Roman centres and later towns. The main problem regarding our archaeological understanding of urban life, fabric and functions seems to be that they can have totally different material translations that might not always be recognisable from the modern perspective. The question is therefore maybe what different forms urban life and functions could have and which methods we need to identify these.

TH1-11 Abstract 23
A town in the making - exploring early urbanity of Copenhagen through the study of social practices
Author: MA Dahlström, Hanna, Aarhus University, Højbjerg, Denmark (Presenting author)
Keywords: Iron processing, social practices, urbanity
Presentation Preference - Oral

Classical ways of defining urbanity are ill-matched with the early phases of a developing town, and indeed often with the archaeological source material at hand. New ways to describe urbanity in a way that is easier to recognize through archaeology are called for. In my PhD project I explore some new aspects to this problem by studying urbanity through social practices in the first phases of the developing town of Copenhagen, Denmark. One of these areas concerns crafting, specifically iron processing. Through four areas of study I analyse the material remains of social practices undertaken on the site of Town Hall Square c. AD 1050-1300. This paper will discuss the two questions: What can the study of social practices connected to the iron processing activities, in combination with technical analyses, reveal of urban development, of people and networks involved in the iron handling? And what can the role of iron processing have been for the early development of Copenhagen?

TH1-11 Abstract 24
Small town in medieval Russia: the ratio of agricultural, craft and administrative functions
Author: Kovai, Vladimir, Institute of archaeology RAS, Moscow, Russian Federation (Presenting author)
Keywords: administrative function, agrarian towns, small towns
Presentation Preference - Oral

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

TH1-11 Abstract 25
Medieval Oslo Revealed: Latest results from the Folio Line excavations
Author: Nordlie, Erlend, Norwegian Institute for Cultural Heritage Research, Tønsberg, Norway (Presenting author)
Keywords: Excavation, Medieval, Oslo
Presentation Preference - Poster

We will present the latest finds from the old town of Oslo. The Folio Line railway development will cut straight through the centre of the medieval town, and has given archaeologists from the Norwegian Institute for Cultural Heritage Research the opportunity to excavate an area not previously investigated, which lies between the commercial and residential areas to the east and the harbour to the west, and the religious and royal residences to the north and south. So far we have found remains of possible houses, warehouses and other urban infrastructure. The excavations will be concluded at the end of May 2016.
Costume Complex (Clothes and Its Attire): Development, Relationships, Forms and Technologies in Time and Expansion

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

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

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

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

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

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THI-12 Abstract 01
The Eneolithic Adornments as Components of the Costume. The Case of Sultana-Malu Rosu Cemetery

Author - student Sandu, Roxana, National History Museum of Romania, Bucharest, Romania (Presenting author)
Co-author(s) - Margarit, Monica, Valahia University of Targoviste, Targoviste, Romania
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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 Bolian and the Gumelnita cultures (ca. 5000-3800 cal BC) used this cemetery. In these circumstances, the beads encountered some changes in form, dimension and raw material preference for their crafting, but other aspects remained the same in their evolution. Furthermore, the anatomical deposition of the beads on the skeletal remains is a significant source of information in the identification process of the beads as components of the costume or if they were only jewellery pieces.

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

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

**TH1-12 Abstract 04**

**One costume – complex meanings.**

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

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

*Co-authors - Batiste, J., Freilicher, Tallinn, Estonia*

*Presentation Preference - Oral*

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

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

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

**TH1-12 Abstract 05**

**Annular 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: they were used to fasten the edge of the dress 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 expert 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 mostly to the fore in the case of the specimens bearins an inscription, like the one from Gora.*

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

**TH1-12 Abstract 06**

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

*Author - MA Majorek, Magdalena, Nicolaus Copernicus University Toruń 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, shepherd's or clothing accessories (ribbons or shoes).*

*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.*

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 60 mm wide. Apron was sewn silk threads. The material was cut and hanged 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. The dress consisted of a bodice with long sleeves and seen into it, heavily a gathered at waist long skirt. The dress was seen a dense, carefully stitch. Bodice consisted of 12 elements, two at the front (front left and right), the two at the arms (constituting mirror images of each) and 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 single central rear portion considerably elongated. Left side is a mirror image of the right side. Fabric used to sew a dress has an area approximately 5 square meters. The head of the dead woman was laid on a pillow with a silk pillowcase. Pillowcase was made from a single piece of fabric (front and rear portion are of the same shape), but in the course of many years, the bottom portion has been destroyed, so archeologists recorded two separate components. Pillow shape is similar to a quadrilateral with rounded corners. The maximum height is 470 mm, the maximum width is 510 mm. Around the edges either the front or rear portion is silk ribbon. The band is now a dark brown color. In addition, between the edges with the ribbons was seen decorative fill.*

*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, elements of additives and manufacturing technology used fabrics.*

**TH1-12 Abstract 07**

**Attire of the medieval subjects: 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 ethnoviturgical suit. Adornments were made of available natural (plant and animal) materials, but artificial materials (ceramics, glass, textiles) were beginning to be used. Adornments mainly decorate the body, their forms correspond to its parts: head, waist, neck, bracelet. The joining between adornments made by wrapping, tying, staining, 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 (Eneolith, Bronze Age) and during early Middle Ages. Heavy and numerous adornments of non-precious metal produced by forging and casting, fastened and kept draped clothes on the body 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 champlevé enamel and of cloisonné incrustation).*

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

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

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

*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 as other costume jewelry, 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 parrying in sign suit related to specific events and subcultures.*

*The main function is aesthetic. The attire is becoming more individual and formed by concrete person. The report is accompanied by examples of the hat and costume jewelry.*
Jewelry: decoration or a detail of construction? Theory and practice

Author: PhD Staponcai-Brișcan, Daia, Pila Anticoaia, Vâltia, Romania (Presenting author)

Keywords: costume, jewelry, theory

Archaeologists, having found ancient jewelry in the burial monuments, most often regard it as a decoration element, classifying and typologizing it according to the shapes and ornamentation. Mostly only the metallic decoration details remain from all the artefact set or, generally speaking, costume. It is not an easy task to recreate the costume itself with no preserved organic material – textile and leather, though the task is made easier by knowing the jewelry's relation to the skeleton.

In this way, the position of the brooches makes it possible to guess what kind of clothing was pinned with it – layers 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 cloak; decoration details found in the area of the head give us an image about the shaping of hair 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 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 checked; the patterns were made using the yarns of one color to 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.
Interpreting the Archaeological Record

Late Bronze and early Iron Age costumes in the Southern Baltic: unknown and unexplored

Author - Dr. Sussara, Katarzyna, University of Gdansk, Gdansk, Poland (Presenting author)

Keywords: female/male costume, LBa/Late 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 many chances to study costumes of past societies. Most of our knowledge come from proxy data like jewellery types and its distribution within inhumation graves, rare representations of human figure or fortunately survived pieces of clothing. But still we cannot state that there are dealing with every-day or ceremonial costume, human or divine being.

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

Presentation Preference - Oral

In 2007-2010 the Institute of archeology of the Russian Academy of Sciences has conducted the archaeological investigation of the Migration period necropolis Bolshoe Davydovskoe 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 headdress found in 5 of them and in one burial of girl 8-10 years: 2 women were buried wearing head corollas of different type, in one burial, it was a ribbon, fastened with an iron buckle. It was decorated with glass beads, small bronze rings and fragments of jungling pendants. In another burial the corolla consisted of a ribbon with attached plates with rings, decorated with pearl ornaments. According to the observations of I. Belotserkovskaya, similar clips with rings appeared at the end of the I-II cc. In VI-VII cc. they have proliferated and are becoming an indispensable part of the corollas and occasionally necklaces from the population of Riazan-Oka culture. T. Kravchenko believes that the head corolla puts on the top of the textile shawls, which were a part of the women’s headdress. 3 persons had the head decoration of a different type: these were clusters of oval bronze clamps that were closely strung on cords with small wire rings and semi-circular plaques. Probably corollas with clips and small ornaments were sewn onto organic bases (leather, textile?). In all these burials near the souls found a pair of large cylindrical temporal rings with handle. The presence of complicated, often multi-layered women’s headdress is one of the characteristics of funeral rites in cultures of Finno-Ugric type, continuing over a long period of time from the Migration period to the late middle ages. T. Kravchenko, N. Trubnikov and I. Belotserkovskaya made a reconstruction of the typical headdress of female burials of the early phase of Riazan-Oka culture. Mostly it’s a cap of leather or textile with a rigid skeleton, represented by the bronze plate or braid. Caps were decorated with sewn on badges and straps with bronze spirals. Bronze cylindrical temporal rings with blade were attached to hats. At the back were often fastened with a brooch with jungling pendants.

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

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

Presentation Preference - Oral

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

Author - Mgr. hist. Santa, Jansone, University of Latvia, Riga, Latvia (Presenting author)

Keywords: archaeology, dress, Scandinavia

Presentation Preference - Oral

Interpreting the Archaeological Record

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

Author - Dr. Rodinskova, Vlasta, Institute of Archaeology Russian Academy of Sciences, Moscow, Russian Federation (Presenting author)

Presentation Preference - Oral

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

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

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

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

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

Sasanian influence on the Chinese and Central Asian textiles

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

Keywords: China, Silk Road, textiles

Presentation Preference - Oral

From 8th to 14th century silk textiles produced in Asian and European workshops were very often decorated with the motive of confronted animals standing on the floral ornament. The scene is usually put into metadiction-type decoration. It is believed that this convention had its roots in Sasanian weaving tradition, but the oldest depiction of it is known from “jin” fabrics discovered in Turfan oasis (Khinjani and Dunan (Grihagh). Because of its technical features (warp-faced compound tabby) is obvious that they were made in Chinese workshops. Some components of the motive depicted on these textiles are pure Sasanian (animals decorated with flying ribbons, pearls metadiction), but after analysis of the Chinese weaving, I assume that other aspects had been rooted in Chinese tradition (for example anthropic position). These two schools of weaving were under influences of each other especially because of Sasanian trade activity on the Silk Road. This Sasanian-Chinese convention was introduced into Central Asia in 8th-9th centuries (especially to Sogdiana), and then was adopted in Muslim and European art.
The dress has an important place in any research about people from particular time period and location, as it holds a lot of information about their way of life. In historic and ethnographic literature dresses have long been recognized as an indicator of group affiliation. 

The task of the dress is with the use of available knowledge from burial goods, 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 hypothetic version lacking definitive proof in form of actual archaeological finds, although backed by strong supporting evidence.

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**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 Duchs and George Shlytsova 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 Maskevich during the XII-XIII centuries is clearly the organization of agricultural and solar symbols in stable circuit (cosmographic images of the horse, crescent). They have evolved and entrenched in artisanal 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 multiethnic features of the northern land of Polotsk culture. Rings and brooches with Magicartch, 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 artefactik Belorussians.

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**TH1-12 Abstract 19**

**Jewellery workshop in the medieval Smolensk**

**Author:** Murenova, Tatiana, The Institute of archaeology, Buturlinova, 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 fit 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 these finds. 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.

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**TH1-12 Abstract 20**

**Andronovo Costume: Headgear and Ritual**

**Author:** Senior Fellow Usmanova, Emma, Sayarha Archaeological Institute, Reserve Park "Ulytau", Karaganda, Kazakhstan (Presenting author)

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

**Presentation Preference:** Poster

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

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**TH1-12 Abstract 21**

**Peruvian textiles in Warsaw National Museum**

**Author:** MA Kossowska, Dominka, University of Warsaw, Otwock, Poland (Presenting author)

**Keywords:** Paracas, textiles, War

**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 (fazé Necropólis: 500 B.C - 200 C.E) and other two are tape fragment woven in Mayan state (500 – 1000 C.E). Embroiders (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 - mantles, which were part of the fardos - funeral bundles. Two tape 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.

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**TH1-12 Abstract 22**

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

**Author:** Elnina, Kina, Institute of Archeology of RAS, Moscow, Russian Federation (Presenting author)

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

**Presentation Preference:** Poster

During the archaeological work in 2014 under the leadership of L.A. Belyaev in the settlement of Novodevichy Convent (Moscow) necropolis of the 17th – 18th centuries was studied. Among the burials the burial of a man of 55-60 years was of great interest. In the burial, numerous textile fragments, forming the shape of a trapezoid, were found around the head and shoulders. Metal buttons – dumb-bells and baptismal cross were fixed on the chest. In the area of the belt there was a rectangular steel buckle. A comprehensive study of textile remnants shows that they are the remains of collar clothes, made in the technique of golden embroidery on the red velvet. The main patterns of the embroidery ornament are vegetable branches forming sharp oval stamps, as well as elements such as tulp, bugle braid, pomegranate flower, typical for the Turkish fabrics of the 17th century. Phelonian (a sleeveless vestment) had high solid collar of frapoezoidal shape. Frapoezoidal 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. Phelonian 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.

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**TH1-12 Abstract 23**

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

**Author:** Mgr. PhD Danova, Miroslava, University of Trnava, Department of Classical Archaeology, Trnava, Slovakia (Presenting author)

**Co-author(s):** Krupa, Vladimir, Banskobystrické Museum Piešťany, Piešťany, Slovakia

**Keywords:** decorating techniques, goldring, Krakovany

**Presentation Preference:** Poster

The Banskobystrické Museum in Piešťany (Slovakia) acquired golding from grave of noble person in Krakovany – Straž (Slovakia). The ring was found by brickwork employees in 1930s but it has disappeared for almost 80 years. Analysis of decoration techniques confirms that the ring comes from Germanic workshops inspired by Romans. Ball decorations made of silver, golden and silver clasp from the grave II are decorated with identical motifs.
Burying deceased parishioners beneath the wooden church floor was a common practice for approximately 50 years at the church of Käylö, built in 1752. Due to church renovations during the summer of 2015, a number of burials were surveyed and excavated as part of a salvage effort due to the risk posed to the remains, with an unknown number of burials remaining in situ. The dry and well-ventilated microlkimate beneath the floor resulted in exceptional preservation levels for both human remains and their accompanying textiles. This is a rare occurrence in Finnish church studies, as textile materials require unique and often extreme environments for preservation.

The funeral attire at Käylö represents both social and symbolic aspects, contrasting the life and death of these individuals. The sample includes two elderly women, a middle-aged man and three children. Based on their attire and various ornaments we may look into the social ranks of the deceased. Additionally, the selection of cloths and accessories, their manufacture and materials in addition to the plants used to mask the smell of decomposing bodies under the floors, we may read both official and folk religious approaches to considering death and the deceased. Written sources from this period imply that the practices surrounding the burial of a relative were controlled through various beliefs and laws, which will be used to interpret these burials.
This significance displays a degree of appreciation which goes beyond the ideas we would associate with textiles from a modern production from the Neolithic to the Iron Age, representative of the significance of textile products in prehistoric Central Europe. Research results of the past 20 years have made it possible to recognise traditional manufacturing techniques of textile - Oral Manufacturing Traditions, pile-dwellings, Textile Archaeology. This paper aims discussing the cultural, economic and social role of wool production in the above-named regions. Due to their bad preservation conditions, textiles represent an unusual find in archaeological find contexts. Impressions of textiles on ceramic appear, however, more often and provide information about textile technology and raw materials. The so-called textile ceramics occur worldwide in all time steps. The objective of this paper is to analyse this phenomenon from the late Neolithic to the early Iron Age in Central Europe. The function (functionality versus ornamental art) as well as the analysis of used raw materials and techniques are up for debate. Silicone impressions, experimental archeology and grouping procedure serve the investigation. In a case study the production technology, the materials and the usage will be analysed in the social context of the Bronze Age settlement Burszewo in Poland. This central settlement was integrated into a commercial network and had many different raw materials. The socio-cultural meaning of textiles was probably far more important than we can imagine today, living in a world of textiles mass consumption. Grave findings of web weights illustrate this. This contribution's intention is also to examine the value of textiles in general.

TRADITION AND INNOVATION IN TEXTILE TECHNOLOGY IN BRONZE AGE EUROPE AND THE MEDITERRANEAN

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

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Co-author(s) - Frei, Kari M., National Museum, Copenhagen, Denmark
Keywords: sheep-husbandry, society and economy; wool production
Presentation Preference - Oral

This paper aims at discussing the significance of wool production in the European Bronze Age. The focus is on discussing which archaeological and archeozoological material best is used in order to identify, and interpreted the impact wool production had on the society, and the environment. The basis for this paper will be well-documented material from Hungary (Benta Valley) and northern Italy, areas that have clear indications of extensive wool textile production. The available contemporary written sources from the Mediterranean and Near East bear witness to the fact that sheep husbandry was a vital component in wool based economies. In Europe only archaeological material can guide us to understand the importance of sheep-husbandry and woolen textiles. Strontium isotope analyses that has been conducted on the well-preserved textiles from Scandinavia shows that wool in the same textile came from various geological areas, both probable local and none local. This shows that a complex system of production and trade must have existed in Europe during the Bronze Age. This paper aims discussing the cultural, economic and social role of wool production in the above named regions.

TH1-13 Abstract 02
Manufacturing Traditions in Textile Archaeology

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

Research results of the past 20 years have made it possible to recognise traditional manufacturing techniques of textile production from the Neolithic to the Iron Age, representative of the significance of textile products in prehistoric Central Europe. This significance displays a degree of appreciation which goes beyond the ideas we would associate with textiles from a modern standpoint. Within the scope of a large exhibition of 4000 years of pile-dwellings, on display in Baden-Württemberg from 16.04 to 9.10.2016 (www.pfahlbauten2016.de), a key textile find from Pfäffikon-Irgenhausen (CH) has been analysed and reconstructed anew. The patterned textile fragment has been radiocarbon-dated to the Early Bronze Age. It occupies a key position in the textile production between the Neolithic and the Early Iron Age. While correctly identified as brocade in research of the 1930s, more recent publications arrived at erroneous identifications of the technique employed in the manufacture of this piece of fabric. New analyses and a reconstruction of the piece of fabric attest to a combination of weaving techniques which demonstrate the immense significance of textile manufacturing traditions in prehistoric textiles; manufacturing traditions, which did not reduce the textile to a mere carrier of decoration, but which instead recognised appearance and manufacturing technique as a unity.

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

Author - Dr. Banck-Burgess, Johanna, Landesamt für Denkmalpflege, Esslingen, Germany (Presenting author)
Co-author(s) - Bergerbrant, Sophia, Gothenburg University, Göteborg, Sweden
Keywords: Bronze Age, Central Europe, Textile ceramic
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. The available contemporary written sources from the Mediterranean and Near East bear witness to the fact that sheep husbandry was a vital component in wool based economies. In Europe only archaeological material can guide us to understand the importance of sheep-husbandry and woolen textiles. Strontium isotope analyses that has been conducted on the well-preserved textiles from Scandinavia shows that wool in the same textile came from various geological areas, both probable local and none local. This shows that a complex system of production and trade must have existed in Europe during the Bronze Age. This paper aims discussing the cultural, economic and social role of wool production in the above named regions.
that spinning 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.

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

TH1-13 Abstract 06
Comparing the incommensurates?
MBA textile tools from Aegina-Kolonna/GR and Çesme Baglararasi/TR
Author - Velter, Melissa. Klassische und Frühägäische Archäologie, Salzburg, Austria (Presenting author)
Keywords: Aegina-Kolonna, Çesme Baglararasi, Middle Bronze Age textile tools
Presentation Preference - Oral

Investigating textile technologies in the Middle Bronze Age (MBA) Aegean has often focused more on the impact of Minoan-type implements and techniques than on local craft traditions. Especially discoid, Minoan-type loom weights attaching to the use of warp weighted looms have been characterised as an important component of material culture reflecting processes of Minoisation on various 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 Baglararasi. 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 Kleebinder-Gauss 2015). Late Middle Bronze Age occupation layers in Çesme Baglararasi on the western frontier feature an affluent harbour town with very early evidence for wine production (Şahoğlu 2015).

Evidence of textile tools and production from both sites comprises mainly terracotta spindle whorls, numerous centrally pierced sherds and a number of discoid, 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)
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Keywords: Aegean, Bronze Age, Fiber crafts
Presentation Preference - Oral

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

TH1-13 Abstract 08
Does anybody still wear that?
Notes on (representations of) Minoan female dress in Mycenaean Greece
Author - Thaller, Ulrich. German Archaeological Institute, Athens, Greece (Presenting author)
Presentation Preference - Oral

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

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

Hala Sultan Tekke site is located in the southern – east part of Cyprus, ca 7 km from Larnaca. The investigation has been being undertaken at a Late Bronze Age town of Domorokia Vasilia. 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 A, in the 70’s of the 20th century. At that time, the director of the excavations was a Swedish professor Paul Åkerblom, who, with the agreement of the 80’s of the 20th century, worked on 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 A in the northern part of the site.

The conducted, hitherto, excavations allowed establishing the localization of settlement part, works 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 1 and Stratum 2 that can be differentiated by a change in the soil colour and a shift in the stone constructions technique. The research in the 20th century as well as the one conducted for last six seasons brought to light interesting matters regarding textile production at the site. There are both artefacts, including spindle whorls and dozens of loom weights and archaic botanic materials that could fabricate fabric from zephyr in the city. Out of five-most used plant-dyes, namely madder, and other rubiculous plants, insects, the flavonoid dyes, the galloartamins and the dyewoods, two were detected on the site.

The presented paper, throughout an examination of finds, analysis of plant macrofossils and microfossils will highlights the importance of Late Cypriot II of Domorokia Vasilia in the Mediterranean basin.
TH1-13 Abstract 10

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

Author - Doctorandá Ruiz de Haro, María Irene, Escola Internacional de Posgrado - Universidad de Granada, Almuñeacar, 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 Castreña 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 questions about this innovation and its spread to other areas, although this study will focus on documenting spinning bowl in Castreña culture. To explain its presence in this geography and chronology, we will investigate on issues related to the use of Linum usitatissimum, textile raw materials related to this innovation and secondly to open the investigation to their role within the technical chain embodiment of linen thread in the phase of the splicing techniques.

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 bowl technique, while the other part imitated, known in later ages, so called gauze, made in weave 1/1. Technological analyses of the fibres proved their high quality. However, having very few examples of this type of textiles in Poland, we are not able to answer the basic question: is it an import or local production? Information collected from Europe suggest the imported material, but here another question arises – from which direction?

TH1-13 Abstract 12

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

Author - Vatchev, Todor, Regional historical museum - Yambol, Yambol, Bulgaria (Presenting author)
Keywords: ceramic spindle whorls, Early Bronze Age
Presentation Preference - Poster

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

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

TH1-13 Abstract 13

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

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Keywords: Bronze Age, Central Europe, textile imprints
Presentation Preference - Poster

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

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

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

TH1-13 Abstract 14

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

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

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

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

TH1-13 Abstract 15

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

Author - MSc Slomka, Joanna, Polish Academy of Sciences, Łódź, Poland (Presenting author)
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Keywords: bi-ritual cemetery, Hallstatt Period, Textiles
Presentation Preference - Poster

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

The locality was accidentally recovered 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 Świebó is the largest textile collection from Hallstatt period, discovered in Poland. It waited at museum warehouse III 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

TH1-13 Abstract 16
Comb or a vertical loom? Attempt to interpret of the decoration on the urn from Szemud, Poland

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Keywords: Pomeranian culture, vertical loom
Presentation Preference - Poster

One of the most characteristic decorative motifs, appearing at the facial urn from Pomeranian culture, are combs. Those most schematically shown in its simplest form, a few vertical lines engraved from the horizontal line. A more realistic had singled handle, circle suspension and sometimes 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 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.

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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
Presentation Preference - Oral

Large number of children in early agricultural palaeopopulations was connected with their high mortality. Modern techniques offered new perspectives in study of infantile remains. The collections were studied from excavations in Mesopotamia (Tell Khuwan), Balkans (Tell Yunafet), Caucasus (Velikenti), 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 # 15-06-00268.

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TH1-14 Abstract 02
Stress at the beginning of life: diachronical analysis of localized hypoplasia on primary canines

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

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

The aim of the study was to analyze the prevalence of localized primary canine hypoplasia of subadult individuals in selected archaeological samples, based on different chronology and subsistence: the Stone Age sample (7500-2600 BC, represented by Zvejnieki site, Latvia), the Iron Age sample (5-6th c.c., represented by Pilinaiagalis, 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 among children. Children of the highest social rank had lower frequency of hypoplasia compared to children from lower social strata (12.0 % and 27.7 % of teeth with LHPC, respectively). Differences in the prevalence of LHPC most probably reflect changes in the mode of subsistence, and dietary peculiarities of different social strata, although differences in child care practices cannot be excluded.
Interpreting the Archaeological Record

TH1-14 Abstract 05
Childhood interrupted: infant burials on Colonia Iulia Emona's northern cemetery

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

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

TH1-14 Abstract 06
Children and rituality: interpretations of funerary evidences in Estonia during the protohistory

Author: Dr. Abatte, 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 records, the role of infants and children is difficult to grasp; instead, 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. Kaseküla, 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 age of children, starting with a 1-2-years-of-age. So how can we analyse and interpret these findings - were they used only as symbolic representation of gender/social status and therefore in some cases could be found already with 1-2-years old boys? Or axes and spears within juvenile or adolescent boys' burials was 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 Roman life course is a well-studied topic, but there have been few considerations of how artifact evidence can contribute to our understanding of childhood in the Roman period. Yet objects made specifically for children both define and conceptualize childhood as a separate category to adulthood, and embody this through social practices involving material culture. This paper takes one object category, finger-rings, and investigates the evidence that relates to the use of rings by children. By examining grave contexts containing finger-rings, we can establish the normal size ranges that existed for rings worn by children and adults. A much larger sample of rings can then be examined, identifying rings in sizes that are likely to have been worn by children, and documenting any decorative motifs on the bezel of the ring that were particularly associated with them. We can show that decorative motifs that were much used for children in the Roman period include the phallos symbol, palm branch, depictions of the Egyptian god Serapis, and other motifs such as theatre masks. Many of these themes chosen for children’s rings reflect themes of benevolence and protection appropriate to the perceived vulnerability of children in antiquity, while others relate to childhood activities and conceptualise childhood as a time of leisure. A difference can even be identified between motifs used suitable only for babies, and those given to older children. We can also investigate the likely age at which children may have been given seal rings, and so document the life course stage at which they began to articulate their identity as a literate person. The paper suggests that a methodology that could be fruitfully applied in many periods to reveal more about how childhood was conceptualised in the past.

TH1-14 Abstract 13
Work and play at the early modern orphanage in Altenburg
Author - Schäfer, Katrin, University of Bamberg, Bamberg, Germany (Presenting author)
Keywords: History of Childhood, Orphanage, Post-Medieval Archaeology
Presentation Preference - Oral
In contact with my dissertation project at the University of Bamberg I am editing findings from an early modern orphanage. The institution in Altenburg in Thuringia was founded after the 30 Years War like many other houses for this purpose in Germany. The walls of the former church of a monastery were used to establish the orphanage. It was financed by donations of the citizenry but also had to generate money in the textile production. Most of the time the Orphan Father was a qualified spinning and weaving master and the orphans had to work in the production. A work plan from 1710 has been preserved which shows the expected workload per child. Unfortunately only the finds of some spindle whorls mirror the children’s work in the archaeological record. In addition to the manufacture-like work at fixed times of the day the children had to help out with the household chores. The girls assisted the Orphan Mother in the kitchen and other household work, like cleaning and firing the stoves and the boys would help the Orphan Father with gardening, knife grinding and repairs. When they were around fourteen years old the orphans were forced out of the institution and had to make a life on their own. Most of the boys as apprentice of a craftsman and the girls as maids. Nevertheless the everyday life of an orphan not only consisted of work. In the mornings the children attended school and they also found some time for leisure and play: the finds of some toys from the orphanage can prove this.
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very expensive, which rarely appears in graves. But death put an end to her life. Careful manufacturing of the head decorations and sophisticated dress design must have been 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, dresses of adult women. The team also found rare ornaments made of metal and glass, whose purpose was to emphasize the belonging to the church founders’ family was excavated. One of the coffins contained the body of a girl dressed in clothes imitating

In the course of archaeological explorations in former Evangelical church in Bytom Odrzański, a crypt with relics of children was excavated. One of the coffins contained the body of a girl dressed in clothes imitating the costume of an adult woman, and a girl constituted, with scalable emphasis, the “polar opposite of the male free (Athenian) citizen”, therefore the ultimate outcast, the ultimate “other” in Athenian society.

Children and environmental stress in Wielbarkian societies

Author - Dr. Chmiel-Chrzanowska, Marta, University of Szczecin, Szczecin, Poland (Presenting author)
Co-author(s) - Fatma, Rafat, University of Warsaw, Warsaw, Poland
Keywords: children, environmental stress, Roman Period
Presentation Preference - Poster

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

Glass ornaments from a girl’s grave in Bytom Odrzanski

Author - Grupa, Dawid, Institute of Archaeology, Nicolaus Copernicus University, Toruń, Poland (Presenting author)
Keywords: children, glass, ornaments
Presentation Preference - Poster

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

Children in Vilnius potteries

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

In Medieval times, careless childhood was but a short period of one’s life. Children started helping adults out at the tender age of 5-7, often doing hard physical work. Written sources depict children as auxiliary workers and apprentices in various workshops and manufacturing sites. What about archaeological sources? The aim of this presentation is to analyse what tasks children could have performed in ceramic workshops manufacturing bricks, roof tiles, glazed tiles and other household ceramics. The data base of the analysis consists of ceramic artefacts discovered during archaeological research in Vilnius, Lithuania. Artefacts 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’s toys in early modern Scotland

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

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

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TH1-14 Abstract 18

TH1-14 Abstract 18 Work & Play; an archaeology of childhood in Early Modern Scotland

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

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Necromancy in grave reopening practices cannot be seen as a single phenomenon: it was carried out on a variety of timescales and in different ways. However, a consistent offering at graves. Burials of this period were often also re-entered and disturbed: high profile reopenings like that of the Oseberg both through their widespread conversion to Christian places of worship and by sporadic but persistent finds of evidence for Vendel and Viking Period burial places in Scandinavia have long been seen as likely sites for cultic activity, indicated archaeologically - Oral

**Keywords:** graves, ritual, Viking Age

**Presentation Preference:** Oral

A Late Viking Age cemetery with 21 graves in Langelid, Aust-Agder County, Norway, will be used as a starting point to discuss cult practices relating to burials in the this period. Ideas that will be explored are how new graves relate to older grave monuments and to the landscape and settlement patterns, how and where the treatment of the corpse (both inhumation and cremation) may have been performed, and to which degree external and internal features of the graves may indicate how they have been perceived and how people have related to them on a physical level. Further, the choices of grave goods will be used to discuss the kind of artefacts that the living helped prepare the dead for. Secondary burials in four graves may give insights into the importance of burial rituals in a re-use 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 03**

**The Langelid cemetery - landscape, life and afterlife**

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

**Keywords:** grave, ritual, Viking Age

**Presentation Preference:** Oral

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**TH1-15 Abstract 04**

**Positioning ritual: Interpreting corpse postures in early medieval England**

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

**Keywords:** Anglo-Saxon, body, funerary archaeology

**Presentation Preference:** Oral

The notion of mortuary theatre encapsulates the drama and performativity of funerary tableaux in early medieval Europe. While evidence for mortuary performance is more easily identified in exceptionally sumptuous burials, the narratives of the non-elite may be considerably more challenging to interpret, as a result of smaller-scale funerals and less material evidence. However, even in the absence of ostentatious display of wealth, the corpse in the grave was heavily implicated in the early medieval mortuary theatre. The funerary body was progressively constructed and articulated through its positional arrangement, clothing, and other accompanying features. This paper discusses the ritual significance of corpse positioning in early Anglo-Saxon inhumations, bringing together corpse-positional data from over 2000 graves from 33 cemeteries across England. Patterns of recurring corpse postures demonstrate that positioning ritual was consciously and meaningfully practiced in the early Anglo-Saxon period. Naunced 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.
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TH1-15 Abstract 08
Sacredness of Space and the Afterlife:
The Topography of Medieval Lithuanian Cremation Cemeteries
Author - Petrasukas, Gediminas, Vilnius University, Vilnius, Lithuania (Presenting author)
Keywords: sacredness, the afterlife, topography of cremation cemeteries
Presentation Preference - Oral
In many cultures burial rites and the relationship with death and the afterlife are fundamental issues of existence. Death is considered as a passage from this world to the afterlife, therefore, burial is perceived as a direct reflection of connection between the living and the dead. Contrary to the established views, burial rites speak not only about the departed to the Paradise, but also about the living, their ideology and the concept of the afterlife. Nowadays researchers perform comprehensive interdisciplinary studies, and burial rites are used for the reconstruction of the social structure and communication, religion and the concept of the afterlife of past societies.
Furthermore, they allow analysing burial sites and their environment that is of less importance. This paper examines the burial topography and its relationship with the surrounding environment and the landscape. The relationship among cemeteries, residential and sacred places, defensive structures and water bodies is investigated. The paper aims to reveal what role sacredness of burial places, the concept of the afterlife, and afterlife images played in the topography of burial cemeteries.
The early Medieval Lithuanian cremation cemeteries are the case in this study. In the middle of the 13th century, the Grand Duchy of Lithuania was formed as a Christian state, however, Christianity was abandoned, and until the final conversion to Christianity in 1387, Lithuania existed as the only Medieval pagan state in all Christian Europe. In the 13th and 14th centuries, due to the state reform of Paganism in Lithuania, burying cremated deceased in burial grounds became a uniform burial practice. Based on Medieval Lithuanian cemeteries, both Oriental and Western graves were detected, the majority of these graves contained burials with topographical features, both with grave goods, and without. The purpose of my paper is analysis of this burial site and its relationship with death and the afterlife. How are we to interpret this situation? Can we talk about pagan or Christian connotations, perhaps even simultaneously?

TH1-15 Abstract 09
Change of the Lithuanian burial rite in the 14th – 16th century:
Archaeological and Written data
Author - Vīķiņa, Manyda, General Jonas Žemaitis Military Academy of Lithuania, Vilnius, Lithuania
Co-author(s) - Dediala, Ričardas, Vilnius University, Vilnius, Lithuania (Presenting author)
Keywords: burial, cemeteries, medieval archeology
Presentation Preference - Oral
Lithuania was the last European country converted to Christianity. In its ethnic lands the old heathen faith thrived till the end of the 14th century (and in Samogitia till the early 15th century). Though Christianity featured some signs of spreading to Lithuania since the occurrence of the Lithuanian state (the 1st half of the 13th century), conversions were far from massive. Christian communities (both Eastern Orthodox and Catholic) and their churches and cemeteries existed in Vilnius during the heathen times. After Lithuania was baptised in 1387 and Samogitia – in 1413, Christianity began to spread causing changes in different spheres of life including burial rites. In the late 14th – early 15th century inhabitants of the present territory of Lithuania practiced infant burial but cremation continued till the 2nd quarter of the 15th century alongside with that. In case of cremation, the dead were buried both in coffins and without them. Their orientation varied but the tradition of orientating heads westwards started to prevail. It is especially obvious in the burial sites located in the areas where the process of Christianisation was more advanced; burial goods in such graves also tend to be fewer. Nevertheless, most of the burials dating to the late 14th – early 16th century still contain burial goods. In most of the cemeteries surveyed burial goods were present in more than a half of the graves; their numbers varied from one to several dozen of items. Knives were the most popular; they were found in the burials of males, females, and children. Female burials distinguished with the numbers of jewellery items, whereas in the male burials only rings were a common jewellery piece. Besides that, female burials often contained spindle-whorls and awls, whereas male burials included weapons (and sometimes also spurs and stirrups), first strikers, razors, and belt buckles. Other burial items, such like pouches, purses, coins, chain inks, pots, poultry bones, and amulets (laws of wild beasts in metal objects), were found in burials of both genders.

TH1-15 Abstract 06
Were cenotaphs built at Milzi kapis? Analysis of barrows discovered in Wysokie site in Lithuania
Author - Negus, Justyna, University of Tartu, Tartu, Estonia, (Presenting author)
Keywords: barrow, cenotaph, Vilkiautinis
Presentation Preference - Oral
In 2006 Klaipėda University in collaboration with Kaišiadorys museum started investigation of the Bajorai cemetery (Elektrėnai barrow, cenotaph, Vilkiautinis. The lack of human remains in a grave shows us the new stage in the development of the funeral ritual, which in this case evolved into a symbolic burial. It is believed that this was a result of the new social and political reality, which followed in the Eastern Lithuania at the end of the 1st and the beginning of the 2nd millennium. In this time the increasing number of people could not be buried in their indigenous places. It has happened so probably because of the disappearance of the body. Its absence caused by its death in the distant lands. This was connected with the increasing threat in these times which forced the Lithuanian warriors to heading out to war and also was one of the reasons of the fall of the Roman Empire.

TH1-15 Abstract 07
Discovering Otherworld:
Investigation of the Bajorai Cemetery (SE Lithuania)
Author - Prof. Valdievičius, Vytenis, Klaipėda University, Klaipėda, Lithuania (Presenting author)
Keywords: burial site, Pre-Christian religion and mythology, Sacred site
Presentation Preference - Oral
In 2006 Klaipėda University in collaboration with Kašiadorys museum started investigation of the Bajorai cemetery (Elektrėnai barrow, cenotaph, Vilkiautinis. We were exceptionally richly furnished and belonged to the nobility of this society. In addition to rich grave goods both inhumations contained egg shells, although these were recovered from clearly different contexts. In one burial the egg was laid between femurs, on top of her dress and ornaments. It was painted red and clearly displayed with apparent symbolic connotations. The egg from the second inhumation was found at the foot of the woman, next to a ceramic vessel. Both eggs have been identified as chicken eggs with ZooMS and microscopic analysis.

TH1-15 Abstract 05
Change of the Lithuanian burial rite in the 14th – 16th century:
Archaeological and Written data
Author - Vīķiņa, Manyda, General Jonas Žemaitis Military Academy of Lithuania, Vilnius, Lithuania
Co-author(s) - Dediala, Ričardas, Vilnius University, Vilnius, Lithuania (Presenting author)
Keywords: burial, cemeteries, medieval archeology
Presentation Preference - Oral
In 2009 two wealthy female inhumations were excavated in the conversion period (12th–13th century) cemetery at Kukruse, NE-Lithuania. How are we to interpret this situation? Can we talk about pagan or Christian connotations, perhaps even simultaneously?

TH1-15 Abstract 04
 sacredness, the afterlife, topography of cremation cemeteries
TH1-15 Abstract 03
Sacredness of Space and the Afterlife:
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Interpreting the Archaeological Record

TH1-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, Mogiśno, 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 relations between groupings of humans, their habits and behaviours. Nevertheless, it is generally known that saprophytic objects are only final products of funeral ceremony which is both a rite of passage regarding the dead (van Gennip 1990) and some kind of identity performance in order to consolidate community (Tuner 1989).

On that account, of cemetery, as the special space of transregional 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 (Dömänski 1979), was the frontier zone of different archaeological units (the Przeworsk and Weilbarch Cultures, as well as the Elbe cultural circle). Relics from there, for that reason, combine the various features of neighboring cultures over the time. In facts, burial mounds dated from the middle and later Roman Period (II-IV c AD) are difficult to archacological interpretation. For instance, some barrows with remains in cremation site (Horno, Kr. Spree-Neisse) are associated with the Przeworsk Culture because of the warrior equipment inside (Janczak 1990), while others surrounded by stone circle (Luboszyce, Krosno Odrzańskie county) – with the Weilbarch Culture, due to lack of weapon and typically female costume elements in graves (Schuster 2011). In terms of cultural anthropology, the ancestor worship as an important element of religion of various barbarian societies, connected to the sacred spot was the key to reconstruct and study these ritual actions building new order and establishing social roles on the ground of symbolic ones (Tuner 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 (Dömänski 2010) and, perhaps, mythological narratives.

TH1-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. However, the bones of birds dominated remains of Gallus gallus. These findings are interpreted as traces of sacrifices in honor of the deceased or supernatural beings, or as gifts of food, but it cannot be excluded that they are relics of ritual feasts taking place during the funeral ceremony.

At necropolises of the Przeworsk culture zoomorphic figural images, made of clay, were recorded. Artifacts 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 mentioned unit. It should be added that at this same time zoomorphic 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 some motifs, for example a hen and a rooster, occur in the areas lying on both sides of Limes in this period.

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

Author - Dr. Nieszpitowska-Wilńskiewska, Barbara, Institute of Archaeology, Maria Curie-Skłodowska University in Lublin, Lublin, Poland
Co-author(s) - Wilńskiewska, Tadeusz, Institute of Archaeology, Maria Curie-Skłodowska University in Lublin, Lublin, Poland (Presenting author)
Keywords: burials, multculural cemetery, Ułow, SE Poland
Presentation Preference - Oral

Ułow is a small village in Lublin Voivodeship (SE Poland) situated in the region of Middle Rzeczno. The complex of archaeological sites in the woods of the vicinity of Ułow 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 1 and 10), separated from each other by a deep valley of rivulet, now, intermittent. At the same time, it is a border between two zones – 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 Paleolithic, the Mesolithic, the Neolithic (the Lublin-Volhynia, Funeral Beaker and Corded Ware Cultures), as well as the Bronze Age, the early Iron Age (the Tzczecin and Lusatian 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 in Ułow in all phases of the settlement is not an analogy in Polish lands. Therefore, the main question is why the people of so many cultures chose this place. Whether the settlement was associated with convenient geographical and geomorphologic conditions or with cultural tradition, or whether it was the random choice.

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

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Keywords: cremation cemetery, rituals, Roman and early Migration Periods
Presentation Preference - Oral

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

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

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

The early medieval stronghold Breclav-Pohansko (southern Moravia, Czech republic) was important residential agglomeration of so-called Great Moravia 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 8th and 9th centuries. It is a time of the turbulent changes. The so-called Great Moravia was destroyed, the Christian clergy organization was weakened and for a time “pagan” idols of ancestors returned to power. In this time of uncertainty people buried their dead in this place. It is important to discover, how was this funeral space organized. The using of the usual archaeological analytical methods but also the application of multi-proxy methodologies (phosphate, isotopic, pollinic, parasitological analysis etc.) helps 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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Keywords: cemeteries as social understanding, early middle age, faith in funerary context

Presentation Preference: Oral

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

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

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 reason the person and not the group, taking into consideration small, but we think important, differences in the funerary expression of faith of each grave/person.

TH1-15 Abstract 16

In this World and the Next: Deviant Burial Rites from Medieval Cemeteries in Bulgaria

Author: Parvanov, Petar, Central European University, Sofia, Bulgaria (Presenting author)

Keywords: Bulgaria, deviant burials, medieval period

Presentation Preference: Oral

What is deviant burial and why it occurs are questions that have been part of archaeological thinking longer than we may assume. Nevertheless, the interest of such special cases where the deceased received noticable differential treatment is just now forming systematic approach towards them. Recently the theme of deviant burials was reappraised in European archaeology, sometimes creating very heated debate over it. Simultaneously, the increasing finds of 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 gray 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

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Keywords: 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-natal rite connected with the separation from the existing world and post-natal rite – the incorporation into the new world – are performed.

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

TH1-15 Abstract 18

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

Author: PhD candidate Dudzik, Katarzyna, Institute of Prehistory, Zalasiewo, Poland (Presenting author)

Keywords: identity, Mycenaean elites, multiple burials

Presentation Preference: Oral

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

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

The main topic of paper will be an interpretation of multiple burials phenomenon in cases of tradition and communal identity. It is visible that Early Mycenaean elites were focused on cultivating tradition, but with special 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 building successive deceased to the same grave to interpret acts of proving or highlighting the relationships between successive deceased and between deceased and living. It is visible that the elites tried to differentiate between each other by using of special tomb markers (walls, stone steles and tumuli) or graves offerings, which included numerous precious objects (imported or made in local workshops). This explanations will be connected especially with the presentation of cases from Argos (tumuli) and Mycenae (grave circles).

The Argolis cemeteries can be interpreted as a theatre of cultural changes. They indicate a desire to accent a strong significance of the blood ties role into a community and the role of the family as the basic social unit. They also indicate a manner to separate and designate for some groups of society their own “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 role 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 Valtokučienė, Šarūna, Lithuania (Presenting author)

Keywords: Grave goods, Interdisciplinary method, Symbolic meaning

Presentation Preference: Oral

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

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

Also it seems to have been forgotten that funerals are a complex of symbolic actions, which archaeologists can perceive through material remains. To understand symbolical meaning of grave goods we can use interdisciplinary method. This gives a chance to see diverse view of artifacts. The main aim of this paper is to reveal the symbolic meaning of grave goods, using archaeology, anthropology, history and Lithuanian linguistics. To illustrate, five different artefacts have been chosen: needles, rings, sleigh balls, axes and swords.
Interpreting the Archaeological Record

Prevening Archaeological Obsidian from Bulgaria

Author: Bonsall, Clive, Edinburgh University, Edinburgh, United Kingdom (Presenting author);
Co-author(s): Gurova, Maria, National Archaeological Institute with Museum - BAS, Sofia, Bulgaria;
Co-author(s): Ganetsovski, Georgi, Regional Historical Museum, Vratsa, Bulgaria;
Co-author(s): Elenki, Naido, Archaeological Museum, Veliko Tarnovo, Bulgaria;
Co-author(s): Ivanov, Georgi, National Archaeological Institute with Museum - BAS, Sofia, Bulgaria;
Co-author(s): Blanchez, Vladimír, Archaeological Museum, Varna, Bulgaria
Keywords: Bulgaria, obsidian, provenancing
Presentation Preference - Oral

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

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): Gurova, Maria, National Institute of Archaeology with Museum, Bulgarian Academy of Sciences, Sofia, Bulgaria
Co-author(s): Allard, Pierre, Préhistoire et Technologie, Maison de l’Archéologie et de l’Ethnologie, Paris, France
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 guilds 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 Presiny flint for daggers, Ludorgie flint for spearblades, Balkan flint for diagnostic Karanovo I/II/IV/IX blisters, 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 Presiny, Banet 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 (evolution of recognizable networks); iii) raw materials for peculiar uses (in relation to knapping and manufacturing properties).

LITHIC USE ON ISLANDS BIG AND SMALL: SYRIY 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, Tunisia, and as far as France and across the Adriatic Sea in Croatia. Obsidian from Pantelleria was regularly used on Malta and other islands south of Sicily, and to some extent in Tunisia, Sicily, and the island of Ustica to the north. Small amounts of obsidian from sources on Sardinia and Palma were 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 Gabbellotto and Canoletto Dentine on Lipari, and Balata dei Turchi and Lago di Venere on Pantelleria. Consideration of these variables is critical in the understanding of obsidian access and selection, distribution, and use, and may be integrated with our knowledge of the availability and transportation of other material culture items (e.g. flint, greenstone, ceramics, animals, secondary products). The large number of artefacts from many Neolithic and Bronze Age archaeological sites now tested provides the opportunity to assess socioeconomic changes over time, and variation based on location and lithic production methods, typology, and use. Obsidian distribution patterns also provide better understanding of open water transport capabilities and directions, with Pantelleria 100 km to the southeast of Sicily, Lipari 30 km from the northeast coast of Sicily, and many obsidian artefacts transported several hundred km further along the coasts of the Tyrrhenian, Ionian, and Adriatic seas.

THI-16 Abstract 02

Provenancing Archaeological Obsidian from Bulgaria

Author - Bonsall, Clive, Edinburgh University, Edinburgh, United Kingdom (Presenting author);
Co-author(s): Gurova, Maria, National Archaeological Institute with Museum - BAS, Sofia, Bulgaria;
Co-author(s): Ganetsovski, Georgi, Regional Historical Museum, Vratsa, Bulgaria;
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Co-author(s): Ivanov, Georgi, National Archaeological Institute with Museum - BAS, Sofia, Bulgaria;
Co-author(s): Blanchez, Vladimír, Archaeological Museum, Varna, Bulgaria
Keywords: Bulgaria, obsidian, provenancing
Presentation Preference - Oral

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

THI-16 Abstract 03

Sites Sources and Flint Routes

Author - Manolakakis, Laurence, CNRS-Lab. Trajectoires, Nantes cedex, France (Presenting author);
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Co-author(s): Robert, Bruno, INRAP-Lab. Trajectoires, Soissons, France
Keywords: Bartonian flint, sources, procurement, control, Neolithic, Michelsberg, routes, access
Presentation Preference - Oral

During the Middle Neolithic in the Aisne and Vesle valleys, the numerous sites dating to the Michelberg Culture mostly exploit Upper Bartonian Tertiary flint (bfl). 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 Michelsberg areas? Are ditched enclosures involved here in controlling access to the flint source? Is this the case elsewhere in Michelsberg contexts, for example at Jablines, in the central Paris Basin, or Sperone in Belgium? Using the results obtained, we tested various models of routes between sites and sources, based on least cost analysis algorithms for return trips. This enabled us not only to identify the possible routes used, but also to calculate more precise distances involved. Different hypotheses were tested, including direct or indirect access, with or without an enclosure controlling either access or distribution. To conclude, the preliminary results are compared with evidence elsewhere of Michelberg lithic procurement territories.

THI-16 Abstract 04

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

Author - Šatnčius, Eidžius, Vilnius University, Vilnius, Lithuania
Keywords: Final Paleolithic, Mesolithic, 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 marls 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 Paleolithic flint mining sites and workshops had been discovered at 4 places in south Lithuania. Elyenys, Margionys, Tlitras 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.
quartz, quartzite, sandstone. One of such non-flint raw processing cases are set out in the study of the Early Mesolithic Pasiegal-1 site in eastern Lithuania, where knapped porphyry, quartzite and sandstone material amounted to 15 percent of the total debitage from the site. These raw materials were reduced in manner of flint knapping (spheroidal core + short direct percussion + blades and flakes as blanks). At the end of the Mesolithic, the situation changed dramatically and local fisher-hunter communities of north-eastern Lithuania made their contacts with people from the Valdai / Upper Volga Region and got access to sources of high-quality reddish flint. A few hundreds years later, together with banded flint raw nodules the first ceramics / pottery making tradition have reached the Lithuanian territory around 5800 cal. BC. The reddish banded flint was widely used in manufacturing of various types of microliths (backed bladelets, lancets) and working tools. The majority of blanks were struck from single platform conical cores using soft hammer percussion and pressure flaking. In some sites (Suodja-2, Suodja-4) about 5-16 percent of the debitage consists of such kind of flint. The imported grey flint from south Lithuania was also used but in much less quantity than in earlier times. The lack of high-quality flint raw material is quite visible in the majority of the late Mesolithic-early Neolithic settlements assemblages from north-east and north Lithuania, due to sizes of cores, tools and debits which are 3-10 times smaller than usual. Other kinds of rocks used widely for the production of special tools (axes, chisels, grinding stones, etc.), too. Daugava-Dyana river corridor was widely re-used at the turn of the Neolithic-Bronze Age, when the yellow flint was imported from the Valdai / Upper Volga region.

TH1-16 Abstract 06

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 - Fernaia, João, Porto, Portugal
Keywords - northwest Iberia, tool use, greywacke
Presentation Preference - Oral

It is a known fact that the available lithic resources in inland Portugal are quite distinct from the ones in coastal Mesozoic sedimentary basins. This is reflected in lithic assemblages where quartz is clearly dominant while exogenous rocks such as flints and cherts are residual and have specific roles in the raw material economy. Work undertaken recently in the Sabor valley, northeast Portugal, brought to light several prehistoric assemblages (from Palaeolithic to Bronze Age) where a huge range of local and regional rocks were exploited. Dozens of different raw materials were identified and such diversity led to the creation of a regional raw materials reference collection, now in the Natural History and Science Museum of the University of Porto. Although several varieties of quartz dominate the assemblages, other local high silica content rocks were selected by prehistoric communities such as hydrothermal schistifications, opal, jaspers, ypolite, myltilite, 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 for the production of various tools and artefacts (hearth, post holes, fossos), portable art (engraved slabs), amulets, but also on knapped stone assemblages as blanks or tools. It was also applied in daily tasks. In this paper will be presented the multiple uses of greywacke from Palaeolithic to Bronze Age, in a specific region and its significance for each human group.

TH1-16 Abstract 07

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

Author - Astrid, Nyland, Oslo, Norway (Presenting author)
Keywords: lithic procurement practices, quarry research, social phenomenon
Presentation Preference - Oral

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

TH1-16 Abstract 08

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

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

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

TH1-16 Abstract 09

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

Author - Pyžewicz, 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 Funnell Beaker Culture, Ostrobrama Amphirome Culture, and Corded Ware Culture. For the research presented in this paper, we combined raw material analysis with morphometric, morphologic, micro-wear and experimental methods. We carried out studies on the types of raw materials from which the flint axes were made. The data obtained were compared to the sources from local outcrops, and two important centres of axe production associated with the lithics from south Poland and “Scandinavian flint”. Based on these results, we created models of chaine opératoire relating to the production and use of the flint axes made from different types of raw material. Additionally, we investigated the character of the distribution route, whether craftsmen manufactured the flint axes only near to the prehistoric flint mines and their goods were imported to the other territories, or they journeyed as specialists who distributed and repaired the flint axes.
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 - Budziszewski, Janusz, University of Cardinal Stefan Wyszyński in Warsaw, Warsaw, Poland; Co-author - Gruzd, Włodzimierz, University of Cardinal Stefan Wyszyński in Warsaw, Warsaw, Poland; Co-author - Jakubczak, Michal, Institute of Archaeology and Ethnology Polish Academy of Sciences, Warsaw, Poland; Co-author - Radziwiłł, 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 “Krzemionki”. Intensive research on prehistoric flint exploitation on the northeastern margin of the Świętokrzyskie Mountains was conducted during the XXI 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 south-western 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 size and state of preservation of most sites. Verification surface survey of prehistoric banded flint mines resulted in the discovery of materials that show in new light the problem of access to resources and how they were used in the Neolithic and Bronze Age.

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

Author - Bulaeva, Sylvia, Institute of Archaeology and Ethnology Polish Academy of Sciences, Warsaw, Poland (Presenting author)
Keywords: Dynastic Period, Egypt, flint mining
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 mostly used in wadis, such as in Wadi el-Khalu, Wadi Sojor, Wadi 'Umm 'Abd, 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.

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

Author - Čišák, Pierre, CNRS, Nancy, France (Presenting author); Co-author - Klairc, Laurent, CNRS, Nancy, France; Co-author - Tomášik, Bibiana, Institute of Archaeology, Slovak Academy of Sciences, Nitra, Slovakia
Keywords: Early Neolithic, lithic technology, obsidian
Presentation Preference: Poster

This paper will present the result of a new study of the site of Kašov-Čepegov I in eastern Slovakia. Excavations at Kašov were led by Ladislav Banesz in the mid-1980s. Excavations revealed one pit with hundreds of obsidian waste concentrations and associated decorated pottery sherds belonging to the Bükk Culture (Banesz 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 main on-site operation of obsidian knapping at Kašov is quite an original Neolithic obsidian debitage and knapping technology and that there is no evidence of its use in prehistoric times. Excavations at Kašov were led by Ladislav Banesz during the mid-1980s. Excavations revealed one pit with hundreds of obsidian waste concentrations. This paper will present the result of a new study of the site of Kašov-Čepegov I in eastern Slovakia. Excavations at Kašov were led by Ladislav Banesz during the mid-1980s. Excavations revealed one pit with hundreds of obsidian waste concentrations and associated decorated pottery sherds belonging to the Bükk Culture (Banesz 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...
This study is an analysis of local flint pebble reduction strategies in the settlement of Ľarnáte. The site is located approximately 2.5 km from the present Baltic Sea shore on a former lakeshore on the Kurzeme Peninsula (western Latvia) and is dated to the Neolithic of the East Baltic. It was excavated between 1938 and 1959 by Eduards Strums and Lūcija Vainina. During excavations in the site area, discovered many separate dwellings. 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 for flake removal from a pebble the cortical surface of the pebble was used as a striking platform. In this group flakes are produced from impact along the cortical edge of the pebble. Using this strategy the dwelling inhabitants made quite thick and massive monopolar flakes that mostly belong to the secondary flake group (grouped by the Triple Cortex Typology). The same pebble reduction strategy was used for poorest quality imported flint as well. While good and excellent quality imported flint pebbles and nodules were transformed into platform cores or used as irregular multidirectional cores. In some cases, in this dwelling group local flint pebbles have been divided into massive debitage by bipolar technology as well. The secondary dwelling group consists of dwellings where the quality of a flint pebble did not affect the reduction strategy. In these dwellings both poor quality local flint pebbles and all kind of imported flint pebbles were transformed and used as platform cores and irregular multidirectional cores. In these dwellings flakes from local flint are more like flakes from imported flint - thinner and mostly with a flat striking platform. If the results of this study are compared with the study of pottery in the Ľarnáte settlement by Valdis Bērziņš, then the first group dwellings where raw material quality affected the reduction strategy are mostly those where were used local pottery tradition: dwellings with Early Ľarnósa Ware and dwellings with Late Ľarnáte Ware; while in dwellings where raw material quality did not affect pebble reduction strategy Typical Comb Ware pottery was mostly used.
There are eight multicultural sites known near Žyličy village (Hrodna district). Open-air settlements dating from the Final Palaeolithic until the late Middle Ages are located on the upper and lower terraces of the left bank of the Neman River. Five of them were excavated between 1999 and 2011. The first inventories from sites 3 and 4 comprise mainly debitage products, which makes it difficult to determine their cultural attribution. Materials from sites 1, 2 and 5 are more characteristic and allow the flint industry to be ascribed to the Neolithic and Bronze Age. Local Cretaceous flint was used as a raw material. The tool set of the complexes under discussion is typical for the Neolithic and Bronze Age of the Upper Neman region: triangular arrowheads, end-scrapers, borers, knives and knife-like blades, combination tools, burins, splintered pieces, notched tools, axes and adzes. More than 50% of the flint artifacts are waste products: flakes, blades and technical chips. Typological and comparative analyses permit cultural and chronological interpretation of the material as well as highlighting the main features of the local flint industry of the Neolithic and Bronze Age. Therefore, flint materials testily to the presence of the population of the following cultural traditions on the settlements under discussion: Prypiat-Neman and Neman cultures, the Circle of the Corded Ware Culture, and the Trzeciecz Culture.

TH1-17 Abstract 01
Buildings, Spaces and Societies: Manorial Sites in Normandy, ca 1050-1200

Author: Dr. Weikart, Katherine, University of Winchester, Winchester, United Kingdom (Presenting author)
Keywords: buildings, medieval, space
Presentation Preference: Oral

This paper focuses on the interpretation of space at manorial sites in Normandy from the central middle ages, and what spatial analysis can provide to a social meaning of a building. Focusing on research undertaken at manorial sites in Calvados, this paper suggests that considering spatial aspects of medieval buildings provides a heightened awareness to the society using these places, particularly in examining the ways in which social authority would be embodied or enacted through the material trappings as well as the spatial indications of the buildings. The main sites under examination include the Motte d’Olivet (Decaire 1981, 1987, 1988), Chateau de Creully (Impy 1993, 1995, 2012) and Beaumont-le-Richard (Impy 1993, 1999). As a result of the spatial examination, this paper will also seek to interpret the Motte d’Olivet within a broader context of landscape considerations and a contextualized view of the place and its owners. Parallel to English sites such as Gothis (Impey 1993, 1999) and Boobyfield (Eck et al. 2010, Blair 2002) will be drawn to demonstrate potential consistencies or contradictions to a cross-Channel society.

This paper will ultimately demonstrate the varying applicability of spatial analysis in considering social interpretations of buildings particularly for interdisciplinary studies of buildings and societies. This is seen through the Norman and English case studies of the paper, in seeking to discern aspects of the relationships between these intertwined societies of the central middle ages. Overall the paper will demonstrate that the utilization of spatial analysis can be used not only to deepen an understanding of society and their buildings, such as those in Calvados in a period of cultural exchange, domination, and altering views of authority, but also that the use of this method can further illuminate aspects of space and society by using a different lens to view the Norman worlds of the central middle ages.

TH1-17 Abstract 02
Living on the Edge: Cheshire Castles in Context

Author: Dr. Swallow, Rachel, Altrincham, United Kingdom (Presenting author)
Keywords: Castles, Cheshire, Frontier
Presentation Preference: Oral

Landscape studies have seen considerable recent debate, resulting in the development of an interdisciplinary research environment. This reimagining of castle studies by promoting new approaches and interpreting historical landscapes. In this research, the county of Cheshire in north-west England has been thoroughly ignored, perhaps because few medieval documents exist for the county, and because relatively little archaeological excavations and survey have been undertaken on the county’s castles. Interdisciplinary landscape research for Cheshire’s castles therefore distinguishes itself from previous studies, in its recognition, definition and presentation of the entire medieval county of Cheshire as a medieval frontier. Considered separate from England by its contemporaries, this frontier, and the unique power of the earls of Chester, provided the contexts for the multifacous purposes and forms of Cheshire’s castles. Placing the construction of the castle Within the political framework of
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 Cheshire also had influence beyond its boundaries: it was representative, and indeed pivotal, to 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.
This paper will outline the importance of examining the full range of buildings found at the medieval hospitals of England, and how they interact as part of a complex, for understanding how these sites functioned, both physically and religiously. The medieval hospital first appeared in England in the 1080s, with two founded by Archbishop Lanfranc of Canterbury, and they lasted until 1547 when Edward VI passed the Charities Act, abolishing the practice of prayers for the souls of the dead. In the four and a half centuries between these dates, the medieval hospitals were utilised by the charitable to cater to a range of people deemed worthy of Christian charity. Whilst poverty was an overwhelming concern, this often manifested in care for sufferers of leprosy or in sheltering poor wayfarers and pilgrims, and often attention has 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, remains limited. Previous architectural discussion of English medieval hospitals have focussed specifically on the infirmary hall and chapel, the most likely elements to survive as standing remains, and have otherwise noted little overall planning to the site, if the rest of the buildings, such as kitchens or dormitories, are studied at all. Archaeologically, despite the ever increasing range of excavations from across the country, there has only been limited synthesis, the most complete by Roberta Gilchrist in 1995. In both fields the great variation in the nature and form of these buildings across the country has been noted and described as random, but medieval hospitals acted within a form of spiritual economy that also included institutions such as monasteries, nunneries, friaries and chantries. Despite the overwhelming religious nature of these institutions, the underlying presence of a structure to their space has never truly been investigated.

New research has suggested that when looking at these sites as a whole a hierarchy of space can be seen that implies that at some level there was a unified conception of how these sites should look and function, with areas to the south and east being ideologically higher than the north and west. Utilising case studies from excavated hospitals across England these structured spaces will be explored, from the famous St Mary Spital in London, to St 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 archaeological evidence regarding settlement, landuse and the human impact on landscape and nature. The monastery of Rinfarch, located in the Bavarian Forest, is said to have been the first settlement in this region. Apparently, St Gunther, founder of the monastery, started the clearing of the forest and the building itself back in 1011 AD. How this historical date is to be analysed with various methods. The research on geological prospection data, cores from swamps or columns and other archives could give us hints and reliable data about the first activities there and tell us, whether the foundation of the monastery really was the beginning of human settlement in the forest. Another advantage is that the combination of archaeological, geographical, geological and historical sources can give an insight into landscape, agriculture, the origin of building materials and perhaps the general human impact on flora, fauna and landscape itself. Furthermore with analyses like radiocarbon dating or archaeobotanical researches, a chronological overview can be given. However, it is obvious that these works are still in 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.

TH1-17 Abstract 09 Medieval Oslo’s Masonry Buildings Revisited

Author: Bauer, 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 this paper is how the secular masonry architecture reflects the builders’ status, motives, and activities.

TH1-17 Abstract 10 The metalworker’s farm. A study of a medieval “bygård” in Oslo

Author: Edman, Therese Marie, Norwegian Institute for Cultural Heritage Research, Oslo, Norway (Presenting author)
Keywords: Building and property, medieval town, Norway
Presentation Preference: Oral

Since 2013 the Norwegian Institute for Cultural Heritage Research has been excavating several sites in the medieval town in Oslo, in connection with a major railway project. One of the sites contained remains from several phases of medieval buildings with domestic and industrial activity from the late 11th to the early 14th century.

The paper aims to present one of the buildings in a Norwegian medieval town property, a “bygård”, literally a “farm in the town”. The building itself has at least two building phases, and possibly several phases of occupation and use. There are several ovens used for metallworking 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 metallworking. This could mean that the buildings and other features in the excavated area formed part of a metallworking district in the heart of the town of Oslo until a new law, Magnus the Law-mender’s law for the towns, was introduced around 1216. This law regulated metallworking 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: Whatley, Stuart, Museum of Copenhagen, Copenhagen, Denmark (Presenting author)
Keywords: Buildings, Landscape, Medieval
Presentation Preference: Oral

From the Early Medieval period onwards, the harbourside of Copenhagen was constantly developed to provide a safe and profitable harbour for shipping and trade. By the 1400s, the harbourside had expanded southwards to Gammel Strand, and this area became...
TH1-17 Abstract 13

Urban life in an early byzantine small scale house

Author - M.A. Steinborn, Miriam, Römisch Germanisches Zentralmuseum Mainz, Mainz, Germany (Presenting author)

Keywords: Architecture, Society, Worldview

Presentation Preference - Oral

Deliberate burials of animals, vessels, and other artefacts are persistent (if rare) discoveries in and around buildings throughout early medieval Europe. Sometimes called ‘foundation deposits’, such discoveries have traditionally been interpreted as blessings upon a new home, charms to ward off evil, or offerings to a supernatural power. Recent research has preferred to view these deliberately ‘placed’ deposits as traces of household practices, intended to achieve practical domestic results. This paper proposes that placed deposits can be partly understood as a kind of building material widely used throughout early medieval Europe, with specific examples drawn from southern Scandinavia, Germany, the Netherlands, England, Ireland, and Iceland. The main focus will be on two widespread patterns: the placement of objects under hearths or floors, and the burial of material (especially animal remains) in doorways. The paper will argue that such deposits should be viewed not as accessories to a self-sufficient, completed structure, but as integral components of the building’s architecture, with which its ability to function as a building would be seriously, even fatally, compromised. The paper will close with a brief consideration of how objects deposited in buildings at their demolition may have been consequences of an ‘architecture of destruction.’

TH1-17 Abstract 16

Architecture decoration from Malkoto kale near Voden, Bulgaria

Author - Bakartziiev, Stefan, Regional historical museum - Yambol, Yambol, Bulgaria (Presenting author)

Keywords: architecture decorations, ceramic decorations, Medieval castle

Presentation Preference - Poster

Malkoto kale represents Medieval castle. The site is situated near Voden Village. It’s situated on small pick accessed only from South. The area of the site is 0.09 ha.

The castle appeared in 10 c. when modern-day Bulgarian lands are included in the borders of Byzantine Empire. Malkoto kale is destroyed at the end of 12 c. during the Third crusade, headed by Friedrich Barbarossa (1122 – 1165). In 1189 year German crusadas crossed the territory on whole Thrace on their way to Holy Lands.

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

TH1-17 Abstract 17

The Alp Fenga - Analysis of a post medieval alpine dairy hut in the Silvretta Alps

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

Keywords: Alps, Dairy Farming, Interdisciplinary

Presentation Preference - Poster

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

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

The building can be interpreted due to the finds, results and historical notes. For example the ground plan of the ruin has similarities in the 18th/19th century. Furthermore with the help of dendrochronological examination, analysing finds (e.g. the only coal 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 georeferencing methods. Besides the chronology it was possible to find evidences for almost constant human activities in this high mountain region. In conclusion the Alp Fenga is an important part for the archaeological research of dairy farming in the Silvretta Alps.

TH1-17 Abstract 18

Possibilities to interpret of Vilnius old wall bricks using geochemical research method

Author - Sarčevićius, Saulius, Lietuvos istorijos institutas, Vilnius, Lithuania (Presenting author)

Co-author(s) - Tarasievicius, Ricardo, Nature Research Centre, Vilnius, Lithuania

Keywords: brick, geochemical, Vilnius

Presentation Preference - Poster

The archaeological importance of placed deposits in early medieval Europe

Author - Dr. Sofield, Clifford, University of Oxford, Oxford, United Kingdom (Presenting author)

Keywords: Architecture, Society, Worldview

Presentation Preference - Oral

A new house form represented by a three-compartment rural dwelling was formed in Central Europe during the 12th – 14th century. Consisting of a central entrance room, a living room and a storage room/granary (mostly in Eastern Central Europe) or a bedroom and storeroom (in Western Central Europe) it has remained the most common type of traditional village house until the 20th century. Identical house forms appeared in areas of fundamentally different early medieval building traditions of “Germanic” and “Slavic” culture spheres. A comparison of the formal attributes of this new house form with earlier house types provides evidence of a formation process which can be characterized as a synthesis or type of cultural hybridity based on the mutual influences.

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A glimpse of the main street in Medieval Oslo

**Author** - Birklund, Kristina, NKU, Oslo, Norway (Presenting author)
**Keywords:** Middle Ages, Oslo, street

During the excavations at the Fotlo line project a small plot outside the main excavation area was explored in the medieval town of Oslo. Although the first meter of the cultural layer was disturbed, there were still preserved 11 stratigraphically layers of which 9 was from a street. It was soon determined the street was the main street in Medieval Oslo - Vestre strate (western street). Vestre strate connected the Maria Church with the Cathedral and Bispegarderden (the Bishops House). The part of the street excavated was situated only 50 meters from Bispegarderden. The plot excavated was on the edge of the street and shows development of the street through several centuries. From the excavation we realized the street was swept and kept clean as garbage only was situated - Poster.

Aiming to obtain more precise interpretation of brick origin and technological processes using geochemical methods it would be useful: a) to take more (>5) sub-samples from the same brick (avoiding the effect of random sample selection), b) to take samples from the inner part of the brick (reducing anthropogeochernical component), c) to use multivariate analysis method with obligatory determination of total content of main 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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Aiming to obtain more precise interpretation of brick origin and technological processes using geochemical methods it would be useful: a) to take more (>5) sub-samples from the same brick (avoiding the effect of random sample selection), b) to take samples from the inner part of the brick (reducing anthropogeochernical component), c) to use multivariate analysis method with obligatory determination of total content of main chemical elements and their specific satellites, d) to compile geochemical database of as many as possible exactly dated bricks (when a, b and c requirements are met), e) to select the set of chemical elements for multivariate analysis basing on various geochemical features (not only variability of composition), f) to verify and supplement the results of cluster analysis with the help of other multivariate statistical methods, g) to accumulate geochemical data on potential raw material (clay) deposits.

**TH1-17 Abstract 19**

**Title:** A glimpse of the main street in Medieval Oslo
**Author:** Birklund, Kristina, NKU, Oslo, Norway (Presenting author)
**Keywords:** Middle Ages, Oslo, street

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Interpreting the Archaeological Record

TH1-18 Abstract 03

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

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

Presentation Preference - Oral

At the location of the Britbit, Eastern Jutland, large quantities of charred grain reflect the extended agriculture in the Late Neolithic. Different crops were cultivated separately, presumably in a system of crop rotation. At the same time new types of "out-houses" emerge at the settlement, apparently as a function of economy building or barns. Was it an increasing demand for storage that also soon affected the construction of the longhouses ending up with a three-aisted construction at the beginning of the Bronze Age? A moderate size indicates that the appearance of the three-aisted building here initially had a functional purpose related to the interior of the house.

TH1-18 Abstract 04

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

Author - PhD Paulinová, Karolína, Center for Theoretical Study, Charles University in Prague, Prague 1, Czech Republic (Presenting author)

Keywords: Early Bronze Age, individual, Late Neolithic

Presentation Preference - Oral

In the UK, the period of Late Neolithic - Early Bronze Age is the time of changes in pottery types, wider range of artefacts, use of metal, the end of the building of major communal monuments and an increased emphasis on the individual in burials. However, the exact boundary between the two periods is difficult to recognize. The most common prehistoric monuments of the period in the UK are round barrows. They differ from the Neolithic practice of long barrows not only as a result of death customs but also in the funerary deposits they contain. Long barrows usually enclose disarticulated remains of several individuals in a single deposit, whereas round barrows contain primary graves, sometimes with grave goods and secondary burials of individuals added later.

I adhere to the premise that material culture provides a means to develop an understanding of social dynamics. If so, how individuals are buried reflects the behaviour of social groups which in turn arises from the interactions between individual group members. The changing relationship between the living and the dead, reflected in the changes to funerary practices, thus allows us to study the relationship between individual interactions and group level behaviours.

TH1-18 Abstract 05

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

Author - Dr. des. Woltermann, Gisela, Postdoctoral Researcher, Germany, Münster, Germany (Presenting author)

Keywords: Amber finds, Bronze Age, Northern Germany

Presentation Preference - Oral

Multiple sociocultural processes are taking place at the transition between cultural phases. Their reflection by analysing the amber finds gives information about the influence of dynamic changes on the raw material accessibility and craftsmen production which point to a special demand of the Bronze Age Societies. Amber finds were part of the ornamental art and were involved in complex social practices concerning the prestige system, the group identity and the individual representation. In the German Bronze Age, personal adornment was a discontinuous phenomenon, prevailed in different areas and appearing in varying sorts of jewellery types. This paper discusses the disparate effects of the Bronze Age transition phases (LN/SEA and EBA/LBA) at the amber artifacts in northern Germany with regard to their special find context and the patterns of distribution. The results will lead to a nuanced view of the influence of sociocultural transmissions on the amber use.

TH1-18 Abstract 06

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

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

Keywords: Bronze Age, GIS, Settlement

Presentation Preference - Oral

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

However, despite extensive commercial archaeology and major research programmes, there are still no convincing explanations for the significant trends seen during this period such as: the relative invisibility of settlements from c. 2200-1500 BC (Allen 2005); the dramatically increased visibility of settlements after c. 1500 BC (Brück 2000); the emergence of apparently defended settlements and hillforts from c. 1200 BC (Brown 2008); and the peripherising and continuing absence of any villages (Rathbone 2013).

Previous analyses of Bronze Age living spaces in Britain have traditionally concentrated upon the structure and activities occurring within defined settlements or small settlement clusters (e.g. Pope 2003). Instead, this paper will present a new method that systematically compares the contents of settlement environs using the initial results of my PhD research, focusing on 60 settlements sites found solely within the southwest region of Britain (Wiltshire to Dorset). It discusses the variations in these settlements' placements over time in respect to contemporary and antecedent cultural and landscape features within their environs. These environs are defined through a custom cost surfaces model which has been used to estimate the maximum distances that might have been reached by occupants of these settlements, considering slope and terrain, within one day. The comparison of these environs' contents has begun to identify trends in priorities of these site's inhabitants in relation to both "economic" and earlier ritual features which will be shown to change over the course of the Bronze Age.

By doing so I hope to present and explore the social transformations that must have occurred during the Bronze Age in Britain and to comment on how effectively this period represents a time in which society changed profoundly.
TH1-18 Abstract 07

Refnreloved: the social organisation of monument construction in Neolithic Wessex

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

Keywords: Monumentality, Social organisation, Wessex

Presentation Preference - Oral

In 1973, Colin Renfrew published Monuments, mobilisation and social organisation in Neolithic Wessex. This seminal study examined how the amount of time invested in monument building changed throughout the Neolithic period in south central England. Renfrew's (1973) calculations appeared to demonstrate that the number of 'man-hours' invested in building monuments increased as the absolute numbers of individual monuments fell. On the basis of these findings, Renfrew (1973) argued that a number of hierarchical, centrally controlled chieftomies 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, Dörcher etc.

The implications of Renfrew's (1973) study were far reaching: the great monuments of Wessex were, in effect, presented as the earliest evidence of hierarchical institutions exercising power and control in Britain. Moreover, in contrast to earlier, culture-historical models of the past, Renfrew's (1973) explanatory framework succinctly demonstrated how internal processes, not external influences, could drive large-scale social change. Throughout the 1980s and 90s, however, a number of researchers began to question Renfrew's (1973) claims and the anthropological theory that underpinned them (e.g. Hodder, 1985; Barrett, 1994). They argued that 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 reframe narratives of monumentality around the individual but it also had two other consequences. Firstly, the empirical basis of Renfrew's (1973) thesis was never thoroughly interrogated (though see Starnin and Bradley, 1981) and, secondly, alternative narratives of how changing monumentality fitted into large-scale upheavals within social organisation were eschewed.

This paper attempts to redress this imbalance by critically examining Renfrew's (1973) claim that the labour expended on constructing prehistoric monuments steadily increased over time. Renfrew's (1973) methods are reviewed, replicated and his sample expanded so that a more comprehensive but comparable set of data are generated. These data are subjected to statistical and a variety of spatial analyses within a GIS package. The results are considered in terms of how they may be used to construct an alternative narrative of large-scale social change in Wessex c. 4000 BC – 2000 BC.

TH1-18 Abstract 08

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

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

Keywords: Bronze Age Denmark, craft specialisation, lithic technology

Presentation Preference - Oral

An archaeological examination of lithic inventories from a number of Danish Bronze Age settlement sites will provide the basis for a discussion of the role of skilled mass production of lithic artefacts in past metal using societies. Based on a contextual chain of production 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.

TH1-18 Abstract 09

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

Author - Dr. Nygård, Heide, Moesgaard Museum, Ebeltoft, Denmark (Presenting author)

Keywords: Itinerant craftspeople, Metalcraft, workshop organisation

Presentation Preference - Oral

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

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

TH1-18 Abstract 10

Dynamics and transformation during the Late Bronze Age of western Norway

Author - Asa, Prof. Anfinset, 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 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 European pattern of shifts in order to understand the social dynamics involved in these processes.

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 Scandinavia an interesting turning point appeared around 1200 BC when the tradition of building mounds came to an end and was replaced by um burial. New excavations in south Sweden (Scania) demonstrate the um burial to be organised as grave fields possibly related to individual farms. In parallel to these changes the number of different grown crops expanded and the tradition of building very large longhouses came to an end. These changes demonstrate a rather complex re-organisation of the cultural landscape. In this paper I will discuss whether changes in burial traditions and resource exploitations also involved a new social organisation focusing on the individual household. Does the re-organisation of the cultural landscape reflect a social dynamic through time?
Interpreting the Archaeological Record

TH1-18 Abstract 12
Turganic Settlement in the Southern Ural: Stratigraphy, Planigraphy and Radiocarbon Chronology

Author - Prof. Morgunova, Nina, Orenburg State Pedagogical University, Orenburg, Russian Federation (Presenting author)
Co-author(s) - Turitskii, Michael, Volga Region Branch of Institute of the Russian History of Russian Academy of Sciences, Russian Federation
Co-author(s) - Kulkova, Marianna, The Herzen State Pedagogical University of Russia

Keywords: Early Bronze Age, Eneolithic, Turganic settlement
Presentation Preference - Poster

The settlement is located in the north-western part of Orenburg region. About 800 square meters of the settlement area were investigated (1982-2014-2015). The stratigraphy on the all excavation trench is the same. The lower cultural layer of the Eneolithic (the E-complex) is presented with ceramics, and flint and bone artifacts. Ceramics can distinguish two types of Samarsky culture. The flint artifacts (about 2000 copies) : about 60% of the findings are represented with blades and tools made from blades, about 20% are represented with flakes. The blades are very considerably in size – from microblades to unbroken blades of more than 10 cm. The tools made of blades are represented with end-scrapers, chisels, sharp points, arrow heads, and blades with grinding. The finding of an accumulation of semi-finished products and unbroken tip made of large bones of horse, bear, and deer horn, that were surrounded by flint microliths is very important. The found copper ingot which has been attributed as an object of Balkan origin also can be dated as Eneolithic: The BA-complex (Early Bronze Age) was well-represented findings as ceramics (about 2000 fragments of more than 50 vessels), animal bones, wreackages of construction stones, macro products made of sandstone and big pebbles, tools made of bones are numerous. Possibly, the findings of fragments of copper ore and slags, as well as stone casting moulds, are also related to this complex. The found pendant with through hole and small horns made of plain bone blade is similar to the materials of the early Yarmoy culture.

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

The series of 15 radiocarbon data based on animal bones from all the sections of the settlement area, and from different depths was undertaken. The materials of E-complex have been dated approximately by 4250-3950 BC (cal). Above that, some materials have been dated approximately by 4250-3950 BC (cal).

The series of radiocarbon dates based on animal bones from the upper cultural layer confirmed previously established data based on the shadings ceramics from Turganic settlement K-15697-4710±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 Kyzyl-Hak I and II settlements, and from some other sites of Repin horizon of Early Yarmoy culture. The ceramics from the BA-layer of Turganic settlement is similar to the ceramics from these sites.

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TH1-19 Abstract 01
The Chenopodium album presence in Romania Prehistory. Sign of consumption?

Author - Golea, Mihnea, National Institute for Research and Development in Environmental Protection, Bucharest, Romania (Presenting author)
Keywords: archaeology, Chenopodium album, seeds
Presentation Preference - Oral

From the oldest times, humans have been intentionally and selectively collecting the herbaceous plants. Often, such species were recognized for their contribution to vitamins and caloric enrichment in human’s diet and also, of their medicinal properties. The evolution of human’s culinary preferences was based, initially, on the natural products of their immediate environment. Alongside such plants (Polygonum lapathifolium L., Fallopia convolvulus L.) Chenopodium album L. which has medicinal properties and nutritious values (such as laxative, blood purifier, vitamin A, C and so on). This species’ plant remains have been discovered in some Eneolithic and Bronze Age archaeological sites in Romania. Although different discovery contexts imply different actions in using this plant, these discoveries can suggest the usage of this species, most probably as a supplement for human consumption.

However, only through discovery of a large quantity of seeds of Chenopodium album L. and knowing the contexts of discoveries, one can be sure of its usage and can suggest the awareness of this plant’s properties and benefits for consumption. Thus, the cultural heritage of different countries such as old recipes of Chenopodium album L., has a substantial impact in the reconsideration of its use in prehistoric times. One can think that these dishes have an older origin, which can be used in explaining empirically usage of this plants. The findings of plant remains of Chenopodium album L. will be presented in a matter that will put in light the intentions of gathering of this species in the prehistoric times. Also, based on the experimental studies we will try to show the cooking process of these plants and their mode of consumption.

This work was performed through the Partnerships in Priority Areas Program 2011-2013, supported by the Ministry of Education, Youth and Sports – Project “Research in Archaeobotany and Paleoethnobotany” – PN-II-PT-PCCA-2013-4-5394.
TH1-19 Abstract 02
Bronze Age foodways in the Carpathian Basin: similarities and differences, continuities and changes
Author: Drs. Hondelink, Merit, Archeodienst Noord bv, Groningen, Netherlands (Presenting author)
Co-author(s): Dr. Ros, Jerome, UMR7209, CNRS/MNHN, Paris, France (Presenting author)
Keywords: Archaeological Botany, Food and alimentary practices, Roman Limes
Presentation Preference: Oral
The diet of non-Romans living in the border area of the Netherlands was reconstructed by bioarchaeobotanical 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 vici have been excavated and some have been reconstructed. There is no doubt that the Romans traded with each other supplying the other party with men, materials and perhaps produce. But to what 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 archaeobotanical and archaeological data retrieved from archaeological excavations in the area north of the former Limes.
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 technocalic plants and 10 fruits, and approximately an additional 20 seeds/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.

**TH19 Abstract 07**

**PLANTCULT: An investigation of plant foods among prehistoric cuisines of Europe**  
**Author:** Prof. Valamoti, Soultana Maria, Aristotle University of Thessaloniki, Thessaloniki, Greece (Presenting author)  
**Keywords:** ancient plant foods, prehistoric Europe  
**Presentation Preference:** Oral

The plant component of cuisines of Europe’s prehistoric farmers, together with the associated transformation equipment such as grinding equipment, cooking vessels and cooking installations will be explored within a five year research project titled PLANTCULT, recently funded by the European Research Council (ERC). The project will investigate culinary practice among early European farming communities, from the Aegean to Central Europe, spanning the Neolithic through to the Iron Age (7th-1st millennia BC).

A collaboration between the Aristotle University of Thessaloniki in Greece (author), IPNA-Basel University in Switzerland (Prof. Stefanie Jacomet), University of Hohenheim in Germany (Dr. Hart Peter Shika) 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 presentation 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.

**TH19 Abstract 08**

**Medieval alimentation habits deduced from archaeobotanical studies of cesspits**  
**Author:** Dr. Wieloth, Julian, Inrap, Metz, France (Presenting author)  
**Keywords:** Archaeobotany. Early modern times, late Middle Ages  
**Presentation Preference:** Oral

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

Cesspits fillings are the most commonly studied contexts in late medieval and early modern archaeobotany. In most cases, especially when waterlogged plant remains were retrieved, abundant plant remains were recorded, but the archaeobotanical data sets from cesspits are hampered by taphonomic problems. Oil plants, spices, collected and wild fruits are in most cases much better preserved than cereals and pulses. Nevertheless, despite quite different preservation conditions for different types of plant food these emblematic deposits of faecal remains and kitchen waste are most suitable for comparisons due to a high number of recorded taxa of cultivated and 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 some of the recorded spices and other cultivated plants are at least introduced since Roman times. These data of recent studies are confronted with archaeobotanical results from late medieval and early modern cesspits coming from the harbor towns of the Hanseatic League and the Hansestadt Greifswald which developed from the 13th century onwards. During medieval times both towns were part of the Hanseatic League and the medieval and early modern commercial network of the Baltic trade gave access to some imported luxury products like black pepper, cardamom, rice and others. In contrast to these harbor towns with wide-spread commercial contacts the studied towns in Eastern France played a more modest role during late medieval and early modern times.

The communication aims to compare archaeobotanical data from two different regions without direct commercial contacts to study aspects of the social and economic background of plant food and alimentation and choices made by Man.
TH1-19 Abstract 12

Problems and progress in the study of postmedieval archaeobotany in London

Author - Stewart, Karen, Museum of London Archaeology, London, United Kingdom (Presenting author)
Co-author(s) - Dr. Best, Julia, Bournemouth University, Poole, United Kingdom (Presenting author)
Co-author(s) - Vigil-Escalera Guirado, Alfonso, University of Salamanca, Madrid, Spain (Presenting author)
Keywords: Archaeobotany, Postmedieval, Food choice and alimentary practices, Urban

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.

TH1-19 Abstract 13

Unmasking millet from a multi-proxy approach

Author - Vigil-Escalera Guirado, Alfonso, University of Salamanca, Madrid, Spain (Presenting author)
Co-author(s) - Acetelio Bocanegra, Francisco J., Universidad de Antioquia, Medellin, Colombia
Co-author(s) - Garcia-Collado, Mani I., University of the Basque Country UPV/EHU, Vitoria- Gasteiz, Spain
Keywords: biases, invisible food, millet

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 area. After selection from 8800 items from 34 positive samples were retrieved. Hulled barley and free-threshing wheats were the dominant species. Hulled barley and rice were present in minor proportion, and Arvena only appeared sporadically. In this setting, any trace of millet production and consumption seemed to be completely absent.

Other combinations 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, unen preservation of carbonized plant remains, or complete distinctive routes in the processing of different cereal types may be possibly argued. Whatever the right explanation, this case study suggests that we should be extremely cautious when drawing conclusions if there is no way to consider unexpected biases on archaeological and palaeobotanical records.

TH1-19 Abstract 14

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

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

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.

TH1-19 Abstract 15

Digenesiology, biostratigraphy and taphonomy: Seeking out the pathways to destruction or preservation

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

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 the 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 products of digestion and highlights the difficulties for the archaeobotanist in interpreting the recovered assemblage. Understanding the effects of multiple taphonomic agents, often acting independently 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.

TH1-19 Abstract 16

Reconstructing the Greek Byzantine Diet using a comparative analysis of archaeozoology, isotope studies and literature

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

Until now, not much archaeological research has been conducted on faunal diet in Late Byzantine Greece. Most of the knowledge on the diet in Greece from this period is based on literature studies. Recently, 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 Chalcos will be studied. In Byzantine times, between the 10th and 12th centuries, Chalcos was the harbour for Thebe 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 17**

**Analysis of a latrine from 17th century Copenhagen, Denmark**

**Author:** Dr. Hald, Mette Marie, National Museum of Denmark, Copenhagen K, Denmark (Presenting author)

**Co-author(s):** Mosekilde, Jacob, Museum of Copenhagen, Copenhagen, Denmark

**Co-author(s):** Magnusson, Berta, Museum of Natural History, Copenhagen, Denmark

**Co-author(s):** Jensen Søe, Martin, Copenhagen University, Copenhagen, Denmark

**Co-author(s):** Fischer Mortensens, Morten, National Museum of Denmark, Copenhagen K, Denmark

**Keywords:** archaeobotany, diet

**Presentation Preference - Poster**

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

**TH1-19 Abstract 18**

**Middle Bronze Age spread of broomcorn millet in N-Italy: cultural choice or environmental change?**

**Author:** Dr. 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 Neolith North Italy, broomcorn millet (Panicum miliaceum) remains are sporadic and doubtful. Certain identifications originate from two Chalcolithic sites: Monte Corvolo and Vedutino-Tangasse. 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. Agropogon repens, Medicago minima, Chichorium intybus, Oropomum acanthum, Platanicea satis, Silene stiplies, Verbascum sp.) favour dry and warm habitats. It is in this scenario that broomcorn millet started to be widely cultivated. The ecological tolerances of broomcorn millet should also be considered in order to explain its adoption in a multiple cropping system. It is a summer crop, sown very late in spring, as it does not withstand frost during germination. It grows well in regions characterized by warm and Mediterranean-type climate with a short rainy season, on poor soils and under severe droughts.

The MBA 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 internalisation of pulse cultivation (horsebean), and a diffusion of rotation systems.
TH1-20 Abstract 01
Introduction. Regional and chronological development of fishing
Author - Luebke, Harald, Centre of Baltic and Scandinavian Archaeology (ZBSA), Schleswig, Germany (Presenting author)
Co-author(s) - Bergsvik, Knut Andreas, University Museum of Bergen, University of Bergen, Bergen, Norway
Co-author(s) - Koolof, Stefan K. Institute of Prehistory and Early History, Christian-Albrechts University, Kiel, Germany
Co-author(s) - Koivisto, Satu, Department of Archaeology, University of Helsinki, Helsinki, Helsinki, Finland
Co-author(s) - Pedersen, Lisbeth, Kalundborg, Denmark

Fishing has been 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 technologies 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 socio-political systems affecting the fishing communities, as well as the population dynamics.

TH1-20 Abstract 02
Regional and chronological development of fishing: its significance in past economies and their socioeconomic dynamics
Friday, 2 September 2016, 09:00-13:00
Faculty of Philology, Room SP2

Author - Luebke, Harald, Centre of Baltic and Scandinavian Archaeology (ZBSA), Schleswig, Germany (Presenting author)
Co-author(s) - Bergsvik, Knut Andreas, University Museum of Bergen, University of Bergen, Bergen, Norway
Co-author(s) - Koolof, Stefan K. Institute of Prehistory and Early History, Christian-Albrechts University, Kiel, Germany
Co-author(s) - Koivisto, Satu, Department of Archaeology, University of Helsinki, Helsinki, Helsinki, Finland
Co-author(s) - Pedersen, Lisbeth, Kalundborg, Denmark

Presentation Preference - Regular session

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 technologies 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 socio-political systems affecting the fishing communities, as well as the population dynamics.

TH1-20 Abstract 03
Comfortable fishing in Mesolithic western Norway
Author - Prof. Bergsvik, Knut Andreas, University of Bergen, Bergen, Norway (Presenting author)
Co-author(s) - Riches, Kenneth, Zentrum für Baltische und Skandinavische Archäologie, Schleswig, Germany

Keywords - Fishbones, Fishing gear, Settlement patterns

Presentation Preference - Oral

In late Mesolithic western Norway fishing stood for a major factor in the subsistence. The majority of the residential sites are situated close to the shoreline, near good fishing grounds. Line-sinkers of sootstone 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 some of them - where conditions for preservation for faunal materials are favourable - fishhooks of bone are found, and also
large amounts for fish bones. The osteological analyses show that the main species caught belong to the cod family (Gadidae) of relatively small sizes. In spite of a strong marine focus, these populations were not deep-sea operators. Fishing was instead carried out in the “comfort zone” in the protected fjords, straits and archipelagos along the western coast.

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

Author - Researcher Pedersen, Lisbeth, Independent, Kalundborg, Denmark (Presenting author)
Keywords: diachronous studies, eel fishing, human diet, regional and chronological development of fishing
Presentation Preference - Oral

Fishing constitute a significant source of essential nutrients in the human diet. Over time, people around the world have developed numerous different methods of obtaining vital nutritional elements from aquatic environments. Eels, with their substantial content of fatty acids, vitamins, and, not least, fat, are an example of an aquatic food source that has been prized in many parts of the world for millennia. Numerous different fishing methods have been employed, founded on observations of the mystical behaviour of this fish. Its remarkable biology did not begin to be understood until the 20th century and there are still some unsolved 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-archaeological evidence can provide information that is useful in interpreting prehistoric eel-fishing strategies. Ethno-historical sources support evidence from studies of prehistoric wood suggesting that Stone Age people systematically managed the surrounding forest to obtain building materials of an appropriate quality and in the required quantities for their fishing structures in the sea.

Archaeological and archaeological data show that eels have been part of Danish food culture for the past 8000 years. In 1988 and 1990, remains of fishing structures dating back between 4500 and 7000 years were investigated. These archaeological structures were interpreted as so-called ålegårde – eel weirs, which the fisherman of historical times built on the coast and out into the sea. They were used to catch the schools of silver eels which then, as now, were harvested every year from Baltic and Danish waters to the Sargasso Sea to mate and reproduce. This interpretation provided grounds for examining a number of different ethno-historical source categories from Danish museums and archives in order to assess information on construction methods, choice of fisher-farmers and marine biology in relation to the corresponding prehistoric structures. According to a Danish adage, it’s hard to catch an eel by its tail. This paper provides diachronous Danish examples showing how the skill, craftsmanship and know-how of the Stone Age fishers, in relation to the manipulation of both marine and terrestrial resources targeted at catching the “tricky” eel with its high nutritional value, were apparently passed down from generation to generation until the demise of this activity in the mid-20th century. But everything has its price! Some Danish sources reveal how people risked both life and limb when fishing from stationary structures during autumn and winter storms. Still eels are a much sought-after and highly prestigious food source in many parts of the world. Danish eel stories, from museums and archives, reveal how the people of Denmark have, since the Stone Age, employed special methods, ranging from almost childishly simple tools to complicated wooden structures stretching out into the sea, to ensure that the strong eel ended up making a valuable contribution to human nutrition.

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

Author - Dr. Klooß, Stefanie, Archäologisches Landesamt Schleswig-Holstein, Schleswig, Germany (Presenting author)
Keywords: Baltic Sea, fishing, Mesolithic
Presentation Preference - Oral

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

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

Spear fishing is one of the practised fishing methods during Final Mesolithic and Early Neolithic in the Baltic Sea region. Very high find density of wooden leister prongs at specialised coastal hunting and fishing camp sites shows the intensive use of spears especially during the winter months. Thus, spear fishing of eel plays an important role in the subsistence system of Stone Age Hunter-Fisher-Gatherer groups in the Baltic Sea region.

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

Author - Luebloke, Harald, ZBSA Schloss Gottorf, Schleswig, Schleswig-Holstein, Germany (Presenting author)
Co-author(s) - Klooß, Stefanie, Institute of Pre- and Protohistoric Archaeology, Christian-Albrechts-University, Kiel, Germany
Keywords: Mesolithic, wooden leister prong
Presentation Preference - Oral

The Stone Age site Sise is situated in the valley of the River Ullava on the Kurzeme Peninsula in western Latvia. Next to the site is the former river mouth, where during the transgressive phases of the Ancylus Lake and Litorina 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-fishery-gatherer groups.

New research in this area started in 2010 in close cooperation with a local archaeologist, resulting in a large collection of Mesolithic and Early Neolithic bone and antler tools. Excavation on the Riverbank in 2012 has brought to light wooden objects from stratified context as well: part of an eel camp and a tool handle with preserved resin showing imprints of a binding material, which are dated to 8200–8600 BC. The wooden leister prong from Sise is the oldest find of this 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.

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

Author - Dr. Kashina, Ekaterina, State Historical Museum, Moscow, Russian Federation (Presenting author)
Keywords: final Stone Age, fishing gear, North-East Europe
Presentation Preference - Oral

State Historical Museum, Moscow, obtains the largest collections of Stone Age artifacts in Russia, among them occasional finds, old and modern excavation materials are present. I will review different groups of items concerning sedentary hunters’ fishing gear dated IV-III millennium B.C. (sac, dugouts/roboat, bark/ skin canoes (studied by clay sculpture), wooden paddles (samples preserved in peat bog layers), wooden 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.

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TH1-20 Abstract 08
Wood use and woodland management at Šventoji fisheries, SE Baltic, 3200–1000 cal BC

Author - Kęstutis, Peseckas, Vilnius university, Faculty of history, Vilnius, Lithuania (Presenting author)
Co-author(s) - Plikiuviene, Gytis, Lithuanian Institute of History, Vilnius, Lithuania
Keywords: tree species, woodland
Presentation Preference - Oral

Šventoji Subneolithic – Bronze age (4000-500 cal BC) archaeological complex is well known for the extensive excavations that took place during the second half of the 20th century and the excellent preservation of some perishable organic materials. During the last decade of excavations at Šventoji (2006-2010), new sites located in abandoned Bronze Age (2000-500 cal BC) river channels and containing rich cultural layers with a wide range of artifacts and wooden fishing structures were added to the well archaeological complex. Until recently tree species of wooden artefacts found during the excavations at Šventoji were rarely identified, and then using mostly macroscopic evaluation. Fragmental data, in some cases collected using unreliable
The archaeological evidence confirming the significance of salmon fishing in prehistoric Finland is weak. Based on historic information to be used in archaeological reasoning and interpretation. Analogous data may also provide important tools for understanding the fragmentary and biased archaeological record and open up new avenues for exploring prehistoric fishing.

Our knowledge of Roman fishing is based on a wide range of written and pictorial as well as archaeological sources. The study of the latter came into academic focus in the past few years (cf. International Workshop “NETS AND FISHING GEAR IN CLASSICAL ANTIQUITY: A FIRST APPROACH”, University of Cadiz 2007). All sources teach us about techniques and fish consumption as well as fish processing to manufacture the famous garum. Ancient authors (cf. Ovidius’ Haukekut) and some rare inscriptions give us insights in the organisation and socio-economic structures behind the Roman fishing industries. Most of these sources originate from the Mediterranean.

In contrast, almost nothing is known about freshwater fishing in the north-western provinces. Even though fishing tools as hooks and net needles were regularly found at Roman sites (cf. Windisch- Vindelina, Biberach, CH; Nennig-CH; Kempenah, CH etc.). The Roman poet Ausonius also reported that Romans fished with fishing rods and nets in the Moselle. Thus it must be assumed that fresh water fishing was more common than it seems.

Following this assumption, the paper provides a first comprehensive and interdisciplinary presentation of freshwater fishing during Roman times on the Swiss Plateau. This study area is chosen because of its diversified landscape with lakes, rivers and streams and its good state of research; find assemblages of several ancient cities, vici, villae rusticae and rural settlements have been widely published and discussed.

This paper focuses on the investigation of fishing equipment and fish remains. Data will be compiled from the secondary literature. This quantitative approach will also consider their archaeological context to gain knowledge about the spatial and chronological distribution of the objects. This allows me to draw conclusions in terms of the organisation, nature, dynamic and range of fishing and fish consumption in the north-western provinces.

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**TH1-20 Abstract 12**

**Fishing as part of the local economy in the Steinhuder Meer – an ethnic-historical case study**

**Author:** Dr. Wasi, Timm, Retired, Munich, Germany (Presenting author)

**Keywords:** economy, ethnographic study, Fishing

**Presentation Preference - Oral**

The Steinhuder Meer is a lake of 30 sq, km northeast of Hannover in Northern Germany. Mezolithc artifacts indicate that people made use of the resources of the lake since that time. As it was an economically underdeveloped area at that time, the two bordering states were a matter of constant quarrels in the Middle Ages and Early Modern Times. In the end the inhabitants of the village of Steinhude won the conflict. Most of the fish was caught with the help of fish traps, a method which together with the traditional boats, known as Torfbänke, is still used today. To gain the necessary raw material for the nets fish was grown by the fishermen who were farmers as well, because they could not make their living from fishing alone. The surplus of flax was used for cloth making which was the start of a linen industry lasting to this very day. In addition the boats were used for transporting peat across the lake and for cutting young reed as forage or grass from floating meadows. Traditionally the fishing rights were leased to individual fishermen. This changed around 1900 when the whole lake was leased to a single person. He introduced a type of vessel (Angelkahn) which derived from Havel region and new methods like line fishing and the use of a large seine net. At the same time the railway reached the lake and tourists came in. In the beginning, before special boats for visitors were constructed, Torfbänke were also used for carrying day-trippers. They were fond of smoked eel which was not only sold in the village of Steinhude, but later also at the market in Hannover. In fact the consumption of eel was for many people a reason to visit the lake. Because of this economic success only eels were caught and the rest of the catch was dumped back into the lake. This process lasts until today though most of the eels are now imported from other regions. Perhaps this development can to develop patterns or processings to manufacture the famous garum from the Mediterranean.

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**TH1-20 Abstract 13**

**Pre-Columbian fish traps as source of livelihood for low income coastal people in Latin America**

**Author:** Dr. Andre Carlo, Colonese, University of York, York, United Kingdom (Presenting author)

**Co-author(s):** Ramirez, Mirena, Fisheries and Food Institute, Santos, Brazil

**Co-author(s):** Cruz, Mariana, Fisheries and Food Institute, Santos, Brazil

**Co-author(s):** Brugnoni, Cecilia, Stockholm Environment Institute, University of York, York, United Kingdom

**Co-author(s):** Brandi, Rafael, Brandi & Bandeira Consultoria Cultural, Sao Luis, Brazil

**Co-author(s):** Marques Bandeira, Arkley, Brandi & Bandeira Consultoria Cultural, Sao Luis, Brazil

**Keywords:** economy, ethnographic study, Fishing

**Presentation Preference - Oral**

This paper focuses on the investigation of freshwater fishing in the north-western provinces. Even though fishing tools as hooks and net needles were regularly found at Roman sites (cf. Windisch- Vindelina, Biberach, CH; Nennig-CH; Kempenah, CH etc.). The Roman poet Ausonius also reported that Romans fished with fishing rods and nets in the Moselle. Thus it must be assumed that fresh water fishing was more common than it seems.

Following this assumption, the paper provides a first comprehensive and interdisciplinary presentation of freshwater fishing during Roman times on the Swiss Plateau. This study area is chosen because of its diversified landscape with lakes, rivers and streams and its good state of research; find assemblages of several ancient cities, vici, villae rusticae and rural settlements have been widely published and discussed.

This paper focuses on the investigation of fishing equipment and fish remains. Data will be compiled from the secondary literature. This quantitative approach will also consider their archaeological context to gain knowledge about the spatial and chronological distribution of the objects. This allows me to draw conclusions in terms of the organisation, nature, dynamic and range of fishing and fish consumption in the north-western provinces.

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**TH1-20 Abstract 09**

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

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

**Co-author(s):** Dr. Pilslaukienė, Gedrė, Vilnius University, Vilnius, Lithuania

**Co-author(s):** Dr. Pilslaukienė, Gytis, Lithuanian Institute of History, Vilnius, Lithuania

**Keywords:** Šventoji, fishing, Subneolithic

**Presentation Preference - Oral**

The prehistoric complex of Šventoji in SE Baltic is well known for its multiple archaeological sites, which range in timespan from Subneolithic to the Bronze Age (4000-500 cal BC). Surveys and excavations carried out there in 2013 and 2014 led to the discovery of several new sites, among them a Subneolithic site Šventoji 43, which is one of the earliest sites from Šventoji and includes a dwelling zone dated to 3900-3700 cal BC. The goal of the present paper is to present the results of the excavations at Šventoji 43 and also the analysis of the fish bones recovered at the site.

Šventoji 43 is distinguished from later Subneolithic sites of Šventoji by the presence of blades and microliths in the lithic assemblage and pottery which bears close resemblance to the typical Comb Ware. It is also evident that amber was worked directly on the site and shaped into ornaments, whose forms are identical to those found at Comb Ware sites in the Eastern Baltic. Archaeological wood has already perished, but a great quantity of both burned and unburned, mostly very fragmented bone was recovered, amounting to c. 28,000 fragments. 1436 fragments of bone belonging to fish, seal and forest mammals were identified. The greatest number of identified fragments come from seals among mammals while the majority of fish bones belong to pike and zander. Fish bone analysis shows that the main activity on site was fishing of pike and zander in the lagoonal lake during the spring spawn.

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**TH1-20 Abstract 10**

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

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

**Co-author(s):** Numminen, Katariina, University of Helsinki, Helsinki, Finland

**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 information to be used in archaeological reasoning and interpretation. Analogous data may also provide important tools for understanding the fragmentary and biased archaeological record and open up new avenues for exploring prehistoric fishing.

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**TH1-20 Abstract 11**

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

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

**Co-author(s):** Küttel, Barbara, Berne, Switzerland (Presenting author)

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

**Presentation Preference - Oral**

The Steinhuder Meer is a lake of 30 sq, km northeast of Hannover in Northern Germany. Mesolithic artifacts indicate that people made use of the resources of the lake since that time. As it was an economically underdeveloped area at that time, the two bordering states were a matter of constant quarrels in the Middle Ages and Early Modern Times. In the end the inhabitants of the village of Steinhude won the conflict. Most of the fish was caught with the help of fish traps, a method which together with the traditional boats, known as Torfbänke, is still used today. To gain the necessary raw material for the nets fish was grown by the fishermen who were farmers as well, because they could not make their living from fishing alone. The surplus of flax was used for cloth making which was the start of a linen industry lasting to this very day. In addition the boats were used for transporting peat across the lake and for cutting young reed as forage or grass from floating meadows. Traditionally the fishing rights were leased to individual fishermen. This changed around 1900 when the whole lake was leased to a single person. He introduced a type of vessel (Angelkahn) which derived from Havel region and new methods like line fishing and the use of a large seine net. At the same time the railway reached the lake and tourists came in. In the beginning, before special boats for visitors were constructed, Torfbänke were also used for carrying day-trippers. They were fond of smoked eel which was not only sold in the village of Steinhude, but later also at the market in Hannover. In fact the consumption of eel was for many people a reason to visit the lake. Because of this economic success only eels were caught and the rest of the catch was dumped back into the lake. This process lasts until today though most of the eels are now imported from other regions. Perhaps this development can to develop patterns or processings to manufacture the famous garum from the Mediterranean.
What is the role of cultural heritage for poverty alleviation in coastal areas of Latin America? Along the coastline of Brazil, small-scale fisheries are a traditional and crucial source of food and livelihood for thousands of people. Brazilian coastal communities efficiently integrate modern small-scale fishing techniques with pre-colonial indigenous knowledge, as a ‘neotraditional’ mix. In one of the poorest areas of Latin America, the 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 mitigating poverty in coastal areas of Latin America.

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

TH1-21 Abstract 01
Cremation graves of the Western Balts in the Late Iron Age. Comparative approach

Author: Dr. Shirokhot, Roman, Vilnius university, Vilnius, Lithuania (Presenting author)

Keywords: Aschenplätze, Collective cremation graves, Prussians, Curonians, Scalvians

Presentation Preference: Oral

All the Western Balts tribes have been connected by the burial rite of cremation since the Viking Age and till the intensification of Baltic Crusades. Altogether with language features and therefore similarities of culture, cremation has connected Prussians, Curonians, Scalvians, Galindians and Jotingians in the 10-13th centuries. Despite this each Western Balts area had its own form of cremation graves, often not typical to their neighbors. For example, so named “double layer” cremation graves of Prussians, when cremated deceased was buried in the upper part of the pit above the unburned horse, were practiced in the region of Sambia and Natangia almost unchanged from the 5/6th to the first half of the 13th centuries, and are rare for Scalvians and unknown in Curonia. From the other point Southern Curonians began to burn their dead on a mass scale only in the 9-10th centuries. So, the development of Scalvian and Curonian burial rite looks more dynamic in a comparison to Prussians. Investigating a phenomena of Western Balts collective cremation graves it was concluded, that most of Curonian cremation graves of several individuals were erected in huge pits probably at one moment and belonged to the members of warrior elite or some influential clans and their relatives. In contrast to Curonian collective cremation, Sambian cemeteries Alkja-3, Kholmnoy and Kl. Kaup represent „Aschenplätze“ as certain areas of individual double layer cremations erected very close to each other, and not at once. Their stratigraphy is very different from Curonian, Scalvian or Galindian “collective” cremation graves. Each grave literally has its own form and style of cremation.
Early medieval sites with funeral cremations
in the North-West of Eastern Europe

Keywords: early Middle Ages, Eastern Europe, funeral cremations

5th – 11th century were a time of dominance of funeral cremation in the North-West of Eastern Europe. Among sites of that time are the burial of cremated remains in the ground pits, the flat graves and the so-called “houses of the dead”. The burial barrows stand out against this background, this cultural tradition was introduced into the territory of the North-West from the outside a few centuries. Materials of the studied sites allow to describe the specific funerary traditions and their interaction.

Cremations in Sheksovo: new evidence of the Viking Age

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

Keywords: cremation, interdisciplinary research, Merovingian cemetery

Cremations are known as a dominating funeral ritual in the Upper Volga in the IX-X-th centuries, however present knowledge of cremation practices in this region is based mainly on the documentation of the burial mound excavated in the 1960-1980s and in the earlier times.

Recent investigations in Sheksovo burial site not far from Suzdal, produced with the implementation of modern excavation techniques (2011-2015), opened new research perspective, revealing important aspects of cremation ritual and transition from cremation to interment after conversion to Christianity. Field investigations in Sheksovo 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 century. Recording of superficial cremations with small fragments of burned bones (from five to fifteen millimeters in diameter) and fragments of grave goods (glass beads, metal ornaments, coins) destroyed by fire in Sheksovo 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 funerary practice, which was earlier recorded in Northern Russia, but proves to have much wider geographical spread including the center of the Volga-Oka region.

Find material associated with the cremations (melted objects of silver, non-ferrous metal and glass, mostly dress decoration) indicates a female cremation. Comparison to Volga-Finnic and Baltic cultural traditions shows that cremation was common in the second half of the 11th century. The evidence of cremation 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 Sheksovo 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 excavation and processing of osteological remains.

Keywords: cremation, interdisciplinar research, Merovingian cemetery

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

Many variants of the funeral rites were distributed rite in Eastern Europe during the second half of the 1st millennium AD. These centuries’ burial sites of the Morosovo region were unknown until the last years. Systematic studies of these cemeteries have been done over the past 15 years only. All known burials are opened in the Middle and Upper Oka river, from Kolomna to Borovskoye (Moscow region). Rite feature is that burned bone fragments placed on the ground surface. Urns were used rarely. The compact deposition of cremated bones suggests that they were put in any organic (leather? textile? wood?) boxes. There are no pits in these ground cemeteries. That is why these sites were not detected for a long time. Now for seven cemeteries of different ages are known. The earliest one goes from the V c. and the most late has been dated to the XII c. These dating based on the grave goods 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.

Keywords: cremation, The Great Migration period, Viking Age

Presentation Preference: Oral

Cremation, burial rituals, cremation graves types interconnections, the same as their impact to their neighbors – Samogitians, Semigalians and Balts cremation graves. The same we can tell about horse burials/sacrifices, supported by the horse burials/sacrifices, the Balts cremation graves are different. Such cemeteries as Szczopy or Niemcowka represent human cremated remains in form of small burned bone pieces and scattered with fragmented artefacts. The depth of the 0.2-0.3 m. Their investigator Wojtek Wdowski named them “The cemeteries without graves”. Only few archaeological sites of a partially similar origin are known nearby, as Kröcken in the South Russian province. Furthermore attention is dedicated to the Western Balts suspected female and adolescent cremations, graves with arms, imported goods and evidence of the horse (equestrian equipment and to supposed mail cremation graves with some of female artefacts). The question of probable Western Balts cremation graves types interconnections, the same as their impact to their neighbors – Samogitians, Semigalians and Central Lithuania tribes is also discussed here.

Keywords: cremation, interdisciplinar research, Merovingian cemetery

Presentation Preference: Oral

recognized. The human bones and animal bones are present together constantly. In some burials, animal bones predominate. During studies it was determined the sex, the age of the buried, the temperature of burning. In some cases, it was possible to determine some traumas.

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

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

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Keywords: "Lodges of dead", prehistoric bioarchaeological approaches, cremations

Presentation Preference - Oral

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

These archaeological sites of the Mologa-Shekinka interfluve (western part of the Vologda district) were excavated by A.N. Bashen'kin [1], during 80-90 years of XX c. The author did not formulate the clear opinion about the ethnocultural background of these sites (2). Skeletal materials from “lodges of dead” of this region were not studied till nowadays.

The report is the first summary of the characteristics of the cremated remains from these burial structures. Burned bones from burial sites Chagoda 1, Pugino, Kurenvan'ka XII, Kurenvan'ka XVI were used in this research. Materials were examined with the help of the computer program. 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.

Analysis of the authors' research includes the remains of about 7-10 individuals (males, females, subadults). The fragments of the treated animal bones were detected as well. 87/86 Sr bone ratio indicates the presence of animals. All clear anatomical fragments were used to identify the migrants. The last decade of the life of these humans took place in the different geological environments [3].

Comparative analysis of the regions 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:

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

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

Presentation Preference - Oral

The study of funerary monuments of the Novgorod land was started in the middle of the XIX century and continues to this day. In total, about 10,000 different types of burial constructions were excavated. The investigations demonstrated that in the X-XI century 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 began 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 X XI centuries were excavated in the west part of Novgorod land. This group of burials has never been the subject of a special study for archaeologists. In the field reports and publications they have been interpreted as “a relic of paganism” without any arguments.

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 the 14th century have been investigated in Eastern Lithuania. In recent years, the cremation graves were discovered close to Kernave town of the 13-14 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 burial of a water in a long – time tradition or was it only the consequence of important historical events? The exceptional location of the site is not mentioned in the historical, mythological or folkloric sources. Cremation graves in water are also unknown in broader chronological and geographical contexts. So, bearing in mind the longevity characteristic to funeral traditions, the water burial rituals (which were practiced comparably briefly) forces us to look for uncommon causes of this phenomenon. Together with our colleagues, we offer to reconsider these burial traditions in light of the water requirement. 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. If also should be noted that when the deceased is buried in this way, any grave personification opportunity disappears. East Lithuanian region is noted for barrow burials tradition with very conservative funeral customs which existed 1000 years until the 13th century. Barrow was installed and used for a long time as a posthumous dwelling for a certain family. The specific individual burial place had to be important and at least several family generations were familiar with it. Therefore, the cardinal change of these traditions had to be the consequence of sudden and unavoidable events. Perhaps these events were the cause of death of significant group of persons. In this context, the attention should be drawn to the fact that precisely in the second half of 14th century the eastern Lithuania was reached by the largest forces of the Golden 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.

THI-21 Abstract 09
Urn Cremation in the Southeast Baltic in the late Roman period.

Field record sand laboratory study

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Keywords: late Roman period, Southeast Baltic, urn cremation

Presentation Preference - Poster

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

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

- The temperature and time of pyre burning;
- The presence/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, Nr 18-06-00058.

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 archaeological center, Kolomna, Russian Federation
Keywords: burial ground, cremation, Middle Oka
Presentation Preference - Poster

Multivariate of funeral rites of the Late Roman period - the Early Middle Ages in the central part of European Russia (Moscow region) are not studied in detail. A special place in this variety are the cremation. In particular, the burials differ in the way the localization of the burned bones (burial 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)1. According to the dating of the grave goods the site existed from VI till X cc. Ground graves with cremation is more rare type of burials and associate with IX-X cc. The batches of the burned bones in pits and diffuse cremated bone fragments scattered on the ancient surface are variants of the individual burials. Only a few cases are placed in the pits. In 2013, well preserved burial pit has been discovered during the excavations. Contents of the urn studied in layers, taking into account the depth of the layer. As a result, it was revealed that the burned bone fragments were placed in an urn without anatomical order. Weight cremated bones indicates that the cremated fragments of the funeral pyre was collected selectively, but not completely. The most parts of cremation are located in two layers of the urn: at the bottom and in the middle. Objects of iron and iron weapon (ax, spear, umbo and other fragments) tightly putted above of each of these two clusters of the cremated bones.

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- 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, Nr 18-06-00058.

Numerous post-depositional and post-burial agents affect and potentially alter skeletal material. Biochemical changes in soil surroundings in some cases has the same manifestations on the bones as fire influence. The difficulty to interpret and distinguish such agents also could be due to the unclear taphonomic situation. The case study from Gnezdovo settlement (9-11th cent. AD, Smolensk region, Russia) shows us the good example of application the different approaches to solve the hazard of black stains appearance. The presence of black stains on the bones is associated with the cremation that was used in archeological sites in Europe. The black stains might be the result of taphonomic processes that occurred during the burial or re-deposition. The black stains can be caused by iron oxide and the temperature of the pyre. The temperature and time of pyre burning;

International Journal of Osteoarchaeology

American Journal of Physical Anthropology

Keynote - Gnezdovo settlement, cremation, human remains, taphonomy

Presentation Preference - Poster

Numerous post-depositional and post-burial agents affect and potentially alter skeletal material. Biochemical changes in soil surroundings in some cases has the same manifestations on the bones as fire influence. The difficulty to interpret and distinguish such agents also could be due to the unclear taphonomic situation. The case study from Gnezdovo settlement (9-11th cent. AD, Smolensk region, Russia) shows us the good example of application the different approaches to solve the hazard of black stains appearance on the woman’s skull found in the redeposited burial in the trench 2 (excavations of 2012 season). Archaeological center Gnezdovo is the biggest complex of settlements and cemeteries of Viking age period in Europe. Classical description, microscopic investigation, X-ray fluorescence analysis of the bone material, soil analysis in the context of stratigraphy situation are applied. The complex approach led us to the question of elaborating the objective criteria in the similar cases. Also the C14 dating got from the named bone material helps us to indicate the cultural layers of the second half of 10th century and get a new information about the early period of the Gnezdovo settlement in 9th century.

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1 Syrovatko, A.S., Burials with cremations on the Middle Oka River of the second half of the I millennium AD/Russian Archeology/2014-v.4. p. 63
TH1-23 Abstract 01

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

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Keywords: Ethnoarchaeology, Mesolithic, Shell-middens

Presentation Preference - Oral

Mesolithic shell-middens have been used to support the existence of economic intensification and reliance on maritime resources and sedentarism. The archaeological visibility of shell-middens and the good preservation of archaeological remains have led to a long tradition of research. Nevertheless, the stratigraphic analysis of shell-middens always carries specific problems, given their very heterogeneous natures and the successive post-depositional processes that may have occurred. Indeed, traditional methods and techniques of excavation as well as the character of undifferentiated palimpsest commonly attributed to shell-mounds, have reduced the advantages of good preservation of the archaeological record.

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

The ethnoarchitectural record, including pictures, descriptions of shape, size and the discontinuous but repeated use of circular huts by Yamana people, have allowed us to test a specially developed excavation methodology. We separated and registered 3D dimensions of fine deposition pockets. Experiments of sampling strategies for malacological and fish remains allowed 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 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 us to test a specially developed excavation methodology.
Keywords: Mesolithic, refitting, Star Carr
Presentation Preference - Oral

During excavations at the early Mesolithic site of Star Carr, UK, between 2007 and 2015, three features were encountered. One of these was an unambiguous pit and post structure with the pit filled with large quantities of lithics and organic material. In 2014 what appears to have been a similar feature was discovered, though this had been partially truncated by previous excavations. Finally in 2014/2015, a series of post-holes were encountered, though many of these were ambiguous in an area that had been heavily affected by root action. In this paper we present results of post-excavation analysis of these features. Using refitting, soil 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, Ogeron, CNRS, Rennes, France (Presenting author)
Keywords: Dwelling, Mesolithic, Spatial Analysis
Presentation Preference - Oral

Firstly excavated by O. Kayser during the 1980s, the Mesolithic site of Beg-er-Vil at Quiberon (Brittany, France) is the object of an extensive excavation since 2012, to anticipate its likely destruction by the erosion. It involves both a shell deposit and its periphery, occupied between ca 6200 and 6000 BC. Numerous archaeological structures (pits, post-holes, fire-places, hut) have been discovered. The sedimentary analyzes (sedimentology, soil micromorphology) are linked to chemical analyzes (acidity, minerals) to best describe the spatial variations of the archaeological remains. These taphonomic analyzes allow us to enter for the first time in the lifestyles of maritime hunter-gatherers, particularly marked by many changes of function of the site during the human occupation.

TH1-23 Abstract 06
New insights into open-air Mesolithic settlement in northern Spain. Recent research at El Alloru

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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 these 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 07
Mesolithic shell midden sites from northern Iberia: habitation sites or waste disposal mounds?

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Keywords: Dwelling structures, Settlement, Shell midden
Presentation Preference - Oral

Research on Mesolithic coastal settlements in northern Iberia has been focused in the so-called Asturian area (northern Iberia). Settlement patterns in the area have been defined by the formation of numerous shell middens. The huge amount of shells discarded at the sites, together with the limited presence of other materials, firstly led to consider these deposits as mere waste disposal mounds, whilst habitation areas were thought to be elsewhere. However, after a century of research in the area no Mesolithic habitation sites related to the shell middens have been found.

Extensive excavations in shell middens were limited to the site of Mazaculos II in the late 70’s and early 80’s, where several living floors were recorded. From 2009 extensive excavations at the shell midden sites of El Toral III and El Mazo have brought to light different dwelling structures, such as post holes and hearths. In addition to these features, the excavation of discrete shell midden units produced a variety of materials including molluscs, mammal, fish & bird bones, lithics, charcoal, seeds and human remains, confirming that shell middens in northern Iberia were not only places where the shells were processed and discarded, but habitation sites where a wide range of activities took place.

TH1-23 Abstract 08
Microstratigraphic investigations at the Mesolithic shell midden of El Mazo, Asturias, Spain

Author - Duarte, Carlos, Universidad de Cantabria, Santander, Spain (Presenting author)
Co-author(s) - Iríarte, Eneko, University of Burgos, Burgos, Spain
Co-author(s) - Fuente Autoiroa, Igor, University of Cantabria, Santander, Spain
Co-author(s) - Arias, Pablo, Universidad de Cantabria, Santander, Spain
Keywords: El Mazo, Microstratigraphy, Shell midden
Presentation Preference - Oral

The Mesolithic of the coastal karstic platform of eastern Asturias is characterized by more than one hundred deposits of marine shells and other archaeological material cemented by carbonate in the walls and ceilings of karstic caves. There are only a handful of shell middens that allowed archaeological excavation. The knowledge about the Asturian shell middens still lacks information about the formation and post-depositional processes that are clearly affecting them and complicating archaeological interpretations on its functionality and accumulation. This is also partially due to the scarcity of geoarchaeological approaches to these deposits.

At El Mazo limestone shelter the discovery of a widely stratified shell midden constitutes a rare chance to answering these questions. From a geoarchaeological point of view, El Mazo is particularly relevant for the existence of several layers rich in marine molluscs embedded in matrices with different sedimentary compositions, some of them only a few centimetre thick.

Structures apparently well preserved were also identified, such as combustion features, also with heterogeneous configurations (e.g. presence/absence of stone structuration), which might be indicating different behaviours and types of occupations through time.

Undisturbed sedimentary block samples were collected to investigate into the microstratigraphy of this shell midden and the structures within the shell layers. The study under the microscope of the thin sections obtained allows to systematically identify sedimentary microfacies and ascribe them to possible in situ and redeposited contexts, including those of the combustion features. Ultimately, the identification of sedimentary structures resulting from human activities, that many times leave imprints visible only microscopically, might lead to the reconstruction of the behaviours behind the accumulation of the shell middens.

TH1-23 Abstract 09
Shell middens in the Mesolithic of northern Spain: the case of the shell midden of Mazaculos II, Asturias, Spain

Author - Arias, Pablo, Universidad de Cantabria, Santander, Spain (Presenting author)
Co-author(s) - Iríarte, Eneko, University of Burgos, Burgos, Spain
Co-author(s) - Chaves, Raquel, University of Burgos, Burgos, Spain
Co-author(s) - González, Ignacio, Instituto Internacional de Investigaciones Prehistóricas de Cantabria, Santander, Spain
Keywords: Shell midden, Mesolithic, Northern Spain
Presentation Preference - Oral

Shell middens are among the most characteristic archaeological remains of the Mesolithic at northern Spain. However, the knowledge about their functional and accumulation processes is still fragmentary, due to the lack of systematic excavations and recording. The recent fieldwork in the shell midden site of Mazaculos II has contributed to overcome these limitations. The site is located in the cave of Mazaculos II, in the Estación de Mazaculos, a cave shelter in Asturias (northern Spain). This paper presents the results of a systematic study of the 2009 field season, focusing on the micromorphological and archaeozoological analysis of three shell deposits in order to understand the formation and post-depositional processes of these middens.
TH1-23 Abstract 09
Can pits define a settlement?
One example from inland Iberia Mesolithic

Author: Gaspar, Rita, Porto, Portugal [Presenting author]
Co-author(s): Carmona, Joana, Porto, Portugal

In the last years new discoveries regarding Early Holocene human occupations have been made in inland Iberia, namely in northeast Portugal. One particular site, Foz do Medal, will bring important contributions to the study of Mesolithic communities due to its well preserved records as well as to its location in the border of Spanish Meseta.

Foz do Medal has more than 60 pits within three Mesolithic phases, from the 8th to the 6th millennia cal BC. In some Mesolithic phases pits appear associated to other types of structures, such as post holes, hearths and hut floors. Nevertheless pits dominate the settlement area. Its contents were analysed by a multidisciplinary team, revealing lithic industry, faunal and archaeobotanics remains. One pit presented a human burial.

Throughout Europe pits have been found in several Mesolithic sites and their interpretation has been a matter of debate. Interpretations range from storage structures to hunting traps.

Considering the amount of pits that were found and the interdisciplinary approach carried out in their investigation, Foz do Medal can be a very important site in such debate. Furthermore the excavation provided relevant data regarding subsistence strategies and the use of bothic and abiotic resources.

Keywords: Mesolithic, Portugal, Medieval, Pit, Settlement

Presentation Preference: Oral

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

Author: Dr. Osipowicz, Grzegorz, Nicolaus Copernicus University/ Institute of Archaeology, Toruń, Poland [Presenting author]
Co-author(s): Dzbyński, Aleksander, University of Zurich, Zurich, Switzerland

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

Keywords: Mesolithic, Poland, Spatial analysis

Presentation Preference: Oral

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

Author: Assoc Prof. Rahmstorf, Lorenz, University of Copenhagen, Copenhagen B, Denmark [Presenting author]
Co-author(s): Gralak, Tomasz, University of Warsaw, Warsaw, Poland

The discipline of ancient metrology is generally considered to be a difficult subject and weighing equipment is often not sufficiently discussed in publications - if the evidence has indeed been recognised at all. One of the aims of this session is to promote such studies and to demonstrate its relevance for many key issues of the human past, among them cognition, trade and economic integration, mathematical conception and socio-economic organisation. The time is past due to disseminate the relevance of weights and measures, especially because the identification of such tools often allows for a considerable reinterpretation of the cultural context in which they appear.

We will highlight some of the problems and challenges we have to face when studying (potential) weights, scales or weight-regulated artefacts. Issues we will touch upon comprise the relation of weighing to metallurgy, abstraction, standardisation, metrology, trade and traders and even to the ancient perception and description of the world.

Keywords: cognition, metrology, trade

Presentation Preference: Oral

TH1-24 Abstract 02
Normative and behavioural aspects in Near Eastern weight systems: a Case study from Ebla (Syria)

Author: Dr. Ialongo, Nicola, Sapienza University of Rome, Roma, Italy [Presenting author]
Co-author(s): Dr. Vacca, Agnese, Sapienza University of Rome, Roma, Italy

The material remains of past cultures are conceptualizations of their creators. Artefacts associated with the application of weight standards from prehistoric to the Middle Ages may be analysed in this way. Certainly, weights and scales facilitated trade and exchange, integrated different geographical spheres and cultures in economic terms and became in this way a medium in defining interpersonal and intergroup communication. Weighing is also closely connected the other kinds of measurements of concrete things as well as the conceptualization of numbers.

During this session we would like to raise the following topics:
• When emerged the concept of weighing and under which circumstances? How closely was it related to the increasing importance of metallurgy?
• Whether and to what extent weighing units were abstract concepts?
• Why were certain shapes of weights chosen and preferred in certain regions and periods?
• How were various weighing systems constructed and how were they transformed through time? Can we define clearly the origin and end of the use of specific weighing systems and units?
• What are the contextual associations of weighing equipment (scales and weights)? What does this tell us about the use of these tools and the social status of the users?
• Influenced weighing systems the perception and description of the world?

We would like to invite all scholars to this workshop who analyse such issues by the study of archaeological remains.

Keywords: balance weights, Ebla, hoards

Presentation Preference: Oral

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: Dr. Rahmstorf, Lorenz, University of Copenhagen, Copenhagen B, Denmark [Presenting author]
Co-author(s): Dzbyński, Aleksander, University of Zurich, Zurich, Switzerland

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Keywords: metrology, trade, weights

Presentation Preference: Workshop

TH1-24 Abstract 04
The importance of weights and measures, especially because the evidence has indeed been recognised at all. One of the aims of this session is to promote such studies and to demonstrate its relevance for many key issues of the human past, among them cognition, trade and economic integration, mathematical conception and socio-economic organisation. The time is past due to disseminate the relevance of weights and measures, especially because the identification of such tools often allows for a considerable reinterpretation of the cultural context in which they appear.

We will highlight some of the problems and challenges we have to face when studying (potential) weights, scales or weight-regulated artefacts. Issues we will touch upon comprise the relation of weighing to metallurgy, abstraction, standardisation, metrology, trade and traders and even to the ancient perception and description of the world.

Keywords: balance weights, Ebla, hoards

Presentation Preference: Oral
Interpreting the Archaeological Record

170 171

markets), then adopted, without understanding its essence, by Central-European societies of the Bronze Age. Or whether it is the product of highly organized communities (with well-developed and centralised procedures). 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 standards were reciprocally interconnected. However, from a material perspective, the relation between balance weights and weighed goods remains somewhat obscure. In order to address such a relation, a comparative statistical analysis of two coherent material assemblages will be presented, from the Middle Bronze Age levels at Tell Maridith/Ebla (2000-1860 BC). The assumption is that balance weights found in different buildings (palatial, religious, defensive and domestic) throughout the Old Syrian town and 2) the unpublished silver hoard containing 171 pieces (ingots, rings, chains, scrap metal) found beneath the floor of a dwelling located on the south-eastern slopes of the Acropolis.

The hypothesis to be tested is that the distribution of the weight values of the silver ingots, scraps and fragments—which the hoard is composed of—may reflect 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-defined behaviour.

The two contexts will be analysed through quantitative 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 evidence was focused, 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.

THI-24 Abstract 04
Identifying weights in later Bronze Age Western Europe

Author - Associate Prof. Rahmstorf, Lorenz, University of Copenhagen, Copenhagen S, Denmark (Presenting author)

Keywords: Central Europe, metal production, weight

Presentation Preference - Oral

In Europe, outside the Aegean, secure evidence for the use of weights is known from the second half of the second millennium. The increasing attestation of weights in Europe has been noted in recent decades by archaeologists, particularly by Christopher F. E. Par for Central Europe, by Andrea Cardarelli and others for Italy, and Requel Wijpe 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.

THI-24 Abstract 05
The social use of metrology in the western Mediterranean Iron Age

Author - Dr. Gorgues, Alexis, University of Bordeaux Montaigne, Pessac Cedex, France

Co-author(s) - Poigt, Tribaud, UMR 5608 TRACES, Université Toulouse Jean-Jaurès/Université Bordeaux Montaigne, Toulouse-Bordeaux, France (Presenting author)

Keywords: Iberian Peninsula, Institutions, Weighing

Presentation Preference - Oral

In this paper, we would like to present the first steps of an investigation aimed at discussing the nature of metrology in a specific context of the Mediterranean Iron Age, the Iberian one. Metrology is basically an institution, whose materiality in the Iron Age is mainly linked with weighing. It can take different aspects. When based on experience, on practice and on spontaneous and mutual agreement, we can speak of a practical institution. When enforced by law, and guaranteed through the activity of magistrates, it is a formal institution that may have, much more than the first one, a secondary impact on the material record: its existence will promote normative 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 trade practices connecting at this time the Iberians with others peoples of the Mediterranean area, namely the Greeks and the Punics. The second one is that the weights themselves are characteristics of a metrology having a wide range of application, including—and often predominantly—the proto-monetary sphere. In other word, the adoption of such technology would have meant the deliberate development of an exotic, formal institution, whose imitation aimed at inserting the native networks in the wider Mediterranean ones. This convergence of the Iberian institutions of trade with those of the “Classical” Mediterranean is considered as part of a widest evolutionary process, which conclusion would be the constitution of Iberian “Early States”. We will first look for the evidence linked to weighing. Such evidence is overwhelmingly concentrated in the Valencian Country. We will show that here, from the end of the 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 patrimonial 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 homogenisation of the capacities seemed indeed to result from the productive routine. On this ground, we will conclude that, in the Iberian context, metrology is not a formal institution enforced through legal control and public coercion, but a practical one, aimed at diminishing the transaction costs in a trade context, but at creating interpersonal trust between partners whose association went far beyond the strictly economic sphere.

THI-24 Abstract 03
Weight - highly abstract measure

Author - Dr. Susińska, Katarzyna, University of Gdańsk, Gdańsk, Poland (Presenting author)

Keywords: Central Europe, metal production, weight

Presentation Preference - Oral

In most countries of the world we have one coherent metric system in which every phenomenon can be described using 7 base units. But even in very remote past every unit had its own scope of references and one quantity could be measured using different units depending on physical state, purpose and other properties. Among other measures invented or negotiated the weight is the most abstract one. It is hard to point any natural equivalent that can be used as a comparative amount as e.g. feet, elbow length or the number of eyes, heads or fingers. Even if these units/numbers differs between people there is something like “the ideal model”: every man has 2 eyes, 1 head and 5 fingers in each extremity—except for some rare exceptions.

Or it is possible to establish one benchmark, in which the majority of people fit into with their feet or elbow length. Other quantities were usually counted using proper container, in which the product was consumed otherwise.

The earliest weight units seem to be connected solely with metal production. This particular activity—starting from ore acquisition, extraction, alloy preparing, up till the end-product—requires very specific knowledge and ability to abstract thinking taking into account that at every stage of this process the material has completely different properties. So in this meaning the beginning of the Bronze Age can also be perceived as a moment of emergence the new, abstract unit—the weight. It is intriguing to ask whether we can consider among metal objects, those objects has also comparable sizes and shapes. Wherfore we should consider whether this comparable weight was exactly the characteristic that the producer had meant to achieve or it was rather unplanned and unaware result of planned size and shape of the end-product. If the first thesis is true we should see some existence, not necessarily metal, weight equivalent. In the Bronze Age Central Europe, the evidence for the existence of comparable weight units are scarce and disputable, though we can trace them in the Mediterranean World.

The main aim of the paper is to re-consider whether, to what extent, the idea of weight in Central Europe is connected with metal production itself. Or whether it is the product of highly organized communities (with well-developed and centralised markets), then adopted, without understanding its essence, by Central-European societies of the Bronze Age.
Metal ingots as a medium of exchange

In the Bronze Age and the Iron Age

Author: PhD Goralik, Tomasz, Wrocław University, Wrocław, Poland (Presenting author)
Keywords: medium of exchange, metal ingots, trade
Presentation Preference: Oral

Metal ingots constituted a long-lasting phenomenon that occurred from the beginning of the Bronze Age to the late Middle Ages. They appeared at the earliest in the Sáttira culture in Central Europe. Specimens made of bronze are rib-shaped, while gold ones were made of spiral wires of wire. In the era of the Urnfield complex, longitudinal ingots of bronze and tin appeared. Sometimes they had regular spaced constrictions which facilitated their breaking. They were often found in contexts associated with metallurgy. In the Hallstatt period, objects of this type made from iron appeared. In the La Tène period, ingots of gold, silver or bronze, often broken, have been found together with chopped coins. Analogous finds date from the Roman period, the Migration period and the Middle Ages. From that time spiral wound ingots and coils of wire are also known. Silver ingots are less frequent 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, Benedez, Institut für Archäologien, Universität Innsbruck, Stans, Austria (Presenting author)
Keywords: Byzantine, glass weight
Presentation Preference: Oral

Byzantine glass weights are essential tools of a regulated and controlled coin circulation. To understand the financial management and ultimately the Byzantine tax system of the 6th and 7th century AD they are of a great use.

They are composed of translucent glass of different colour. Dominant are pale yellow and green colours, but even pieces made of dark blue and red or opaque brown glass occur. On the front side they are stamped sometimes with the bust of a dignitary surrounded by a legend including his title and name. The majority of the weights are stamped with the names of dignitaries in the form of monograms.

For the first time 1300 Byzantine glass weights were systematically collected from various public and private collections in a database. About the half of these weights were studied and measured by the author himself to achieve reliable data. The typology of the glass weights is based on the inscriptions, various monograms and figural elements. The aim of the project is to establish a typological and chronological framework of glass weights from the period of the 6th and 7th century AD.

The main problems in the research of the glass weights occur in the understanding of the whole system and the chronology of the different weight types, which is based on their prosopographic identification.

Multifaceted Head of Neck Ornaments “Perm Type”

Author: - Archaeologist Khan, Nikolay, Vjatskaja Archaeologocal Expedition Ltd., Moskow, Russian Federation (Presenting author)
Keywords: EAAM020, 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, it still detect only similar things. In fact, many-sided fastener rings “Permian” type is half the geometric figures tetrahedron with truncated corners, which found in Hungarian antiquities originating in the territory of Bulgaria by Alexander Sjøvold. It is an object against a faster 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 Permian such as appeared in the area between the Vyatka and Kama in the ancient homeland Udmurt-Finno-Permian 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 Scythokavkazians 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 rims Permian type were made to get rid of the excess of silver in the form of coins, which were worn as bracelets.

Neck rings were brought to the Baltic States through the Arab coin, which is before the first silver crisis of 60 - 90 years of the 9th century rushed flow to Sweden. Therefore the treasures with the Arab coins could fall in the period of excess revenues coins from the east, and in the period of 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. The majority of the weights are stamped with the names of dignitaries in the form of monograms.

Any attempt to retrace the identity of the Roman weights’ users could mean to find out the role fulfilled by them inside the ancient society of Aquileia: were they magistrates sent by the authority or private citizens? Hence, Roman weights may provide important valuable insights into the typologies of the measuring control system carried out in the city during the Roman period.
TH1-24 Abstract 11

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

Author: Dr. Rodríguez del Cueto, Fernando, Universitat de Oviedo, Oviedo, Spain (Presenting author)

Keywords: Bronze Age, Hillforts, Weights and measures

Presentation Preference - Poster

In 2008 a flat axes mould was discovered in one of the streets of Pendia's Hillfort, a fortified enclosure in NW of Iberia (IV BC-II AD). Despite its location, in secondary position after using for casting, this find shows a long term survival. Moreover, this mould is related with the first metalurgical activities in our region. Finally, this piece allow a first approach to check if there is some patterns in weights and measures issue during the production of several prehistoric tools.

TH1-24 Abstract 12

Scales and Weights in Roman Trade: The Case of the Wreck Found in Valle Pega (Comacchio, Italy)

Author: Dr. Corti, Carla, University of Verona, Campogalliano, Italy (Presenting author)

Keywords: Roman trade, scales and weights, weighing procedures

Presentation Preference - Poster

In 1981 in the delta of the Po river, in Valle Ponti near Comacchio, was found one the wreck of a Roman ship with its cargo. The boat was engaged in small scale coastal shipping, but it was able also to transport by river. The shipwreck occurred around 12 BC along the north-western Adriatic coast, between two branches of the ancient Po.

The ship’s cargo excavated by archaeologists includes a big variety of merchandise: lead ingots, some with the stamp of Agrippa, amphorae and ceramics of various type and provenience, lamps, wooden beams, fourths of meat and various small objects, including several little lead temples.

A turn-over steelyard for retail trade and a big stone weight are also found in the cargo. They were part of the ship’s equipment. The turn-over steelyard has two capacities and a stamp with the mention of one personage, probably the mensor who built the instrument in according to similar finds. The stone weight, a centonias (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.

TH1-25 Abstract 01

How do we understand animal deposits from the Roman Iron Age in the wetlands in Denmark?

Author: PhD student Pantmann, Pernille, Museum of Northern Zealand, Hilleroed, Denmark (Presenting author)

Keywords: Animal deposits, sacred versus profane, Wetlands

Presentation Preference - Oral

Animal deposits are perhaps the most frequent type of sacrifice in Danish wetlands, and they appear in most of the prehistory. However, in Denmark animal deposits tend to be overlooked compared to other finds from the wetlands, which includes precious metal objects, bog bodies and weapons etc. In contrast, our neighboring countries traditionally prioritize animal deposits a little higher. However, there is still a tendency to look upon animal deposits from a zoological point of view. In order fully to understand all aspects of the Iron Age utility of the wetlands, we have to reexamine the animal deposits and discuss their part in sacred and profane lifestyle of the Iron Age. Most importantly, we must focus on the deposits and their context, not just consider them as zoological objects but also acknowledge the animal deposits as archeological objects with substantial information about society, people and beliefs.

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

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

TH1-25 Abstract 02

Bokaren - a bog revisited

Author: Ekund, Susanna, SBU, Uppsala, Sweden (Presenting author)

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 archaeologists 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 recollect most of the material from the excavation that was spread out at different museum storages and we have studied the documentation. We have also dated some the human skulls and some of the animal’s bones and performed osteological analysis of the human skulls. Last year we got the chance to return to the place for a small scale research excavation to see how the finds had been preserved and trying to find out how big the actual site was. We found another human being and two horse skulls together with worked wood. The site appears to be quite big, and there is more 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 spreads out for a about 1000 years from 300 AD until 1300 AD, which is quite remarkable since it means well into the Swedish middle ages and Christian period. It’s interesting that both the humans and the animals have been exposed to similar types of violence on this site, and this might be one of the clues in how to interpret the mysterious bog bodies. Lake Bokaren is placed near double parish boundaries, between Rasbo and Stavby parishes. This can be interpreted as if this was a place where various localities got together around sacrifice. It’s also challenging to try and put the place in perspective in connection to folklore and oral traditions in the neighborhood. For instance many holy springs are known in the area.

**TH1-25 Abstract 03**

**Place-lore concerning bog bodies and a bog body concerning place-lore**

Author - Kama, Pine, University of Tartu, Tartu, Estonia (Presenting author)

Presentation Preference - Oral

...Under the swamp sods and when chopping down shrubs, many human bones came out from Lawinoo [encampment swamp]. Also pigs dug out human bones with rotted pieces of iron. It seems that fighting had been so fierce that there was not enough time to bury the dead, so they were trampled into the swamp [...] (E 630012).

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 analyze mechanisms of inclusion and exclusion in Late Bronze Age and Iron Age Scandinavia (with case studies mainly from Sweden) manifested in the deposition of human and non-human remains in places outside burial grounds such as in wells, rivers, wetlands and bogs, traditionally seen as sacrificial. Problematising the concept of sacrifice, this paper will deal with the question of bio-politics insofar that it will look at what lives these individuals led as reflected in the skeletal remains. It also particularly deals with questions about Necropolitics and the control of the boundary between life and death and the effects of such control on societies, but also reflect on Zoe-politics as a historical phenomena (cf. Agamben 1998, Mbembe 2003, Braidotti 2013).

**TH1-25 Abstract 05**

**Peat Pits practical or ritual constructions**

Author - Magister (M.A.) Wåhlin, Sidsel, Vendsyssel Historiske Museum, Hjørring, Denmark (Presenting author)

Keywords: Bog sacrifice, Iron Age, 1. cen. AD, ritual practice

Presentation Preference - Oral

In the sacrificial bog of Svennum (Vendsyssel, Denmark) six scults were deposited in a group of 13 small peat pits (2013 excavation). The deposited is dated by ceramics to the first century AD. In the pits were also deposited sticks, ceramics animal bones and white stones placed meticulously as quern and rows in a none practical way. In 2015 the bog was further excavated and here it became clear that pits was not the most common way of extracting peat from the bog, large scale vertical stripping of peat was by far the norm this stripping is also dated to the Iron Age by ceramics. New deposits of animal bones, stones and wooden objects came to light, the deposits were different in form than the ones excavated in 2013, some were very organized some more random in character. A survey of older finds of bog deposited scults in Vendsyssel suggest that they also were found in small peat pits. In Denmark it is generally held that Iron Age peat digging is always conducted in form of small pits but Svennum clearly shows that this is not the case. Most cases of Iron Age peat digging are registered because deposits come to light and are found to be soil pits. The question raised is are the pits actually dug for practical reasons or are they in fact in themselves a result of ritual practice. The very elaborate placement of stones at the bottom of the pits before any new peat growth and the alternative form of peat extraction could suggest this.

**TH1-25 Abstract 06**

**‘Well-preserved’ human remains – cultural paradigms on conservation**

Author - Dr. Giles, Melanie, The University of Manchester, Manchester, United Kingdom (Presenting author)

Presentation Preference - Oral

This paper explores the marvelous accident of natural preservation which characterizes bog bodies, and the deliberate conservation choices which then determine their future ‘life’ as well-preserved corpses. It critically examines the different paradigms which have governed cultural choices over whether to re-bury, curate or conserve bog bodies, from the 17th-21st centuries within UK and Ireland. It will contrast both changing attitudes to the body, with developing ideals on conservation philosophy during this time. By contrasting these case studies with wider examples from northern Europe, it will show how they can be a lens through which we examine societal attitudes to bodies that confound our expectations of corporate decay. The paper hopes to share current ideas about ‘best practice’, pointing to the vital relationship between curator and conservator, in terms of the long-term future of such internationally significant remains.
INTERPRETING THE ARCHAEOLOGICAL RECORD

Co-author(s)

TH1-26 Abstract 02
Grinding Tools and Circular Enclosures - Ceremonial Behaviour or Common Refuse Management?

Author - Řídký, Jaroslav, Prague, Czech Republic (Presenting author)
Co-author(s) - Burgert, Pavel, Prague, Czech Republic

Keywords: Circular enclosures, Grinding tools, Neolithic

Presentation Preference - Oral

The presentation will introduce assemblages of stone grinding tools from the late Neolithic sites (4800 - 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?

TH1-26 Abstract 03
The ritual use of flint

Author - Prof. Larsson, Lars, Department of Archaeology and Ancient History, Skåne, Sweden (Presenting author)

Keywords: flint, flint axes, Southern Scandinavia

Presentation Preference - Oral

In Southern Scandinavia, as in other areas, flint had a special position as a raw material for making a variety of tools. Flint was not only an important element of daily activities, however; it also became a catalyst of ritual. Flint became a very important element in marking the relationship between people and their conceptions of a different world populated by deities and dead ancestors. In this relationship flint axes played a very special role. The final stage of axes was mainly determined by shape and cultural connections. Deliberate deposition of axes in Southern Scandinavia chiefly occurs in a large number in wetland but also at and in megalithic graves. The transformation of flint tools could also involve changing the material through heating. The use of heat differs depending of tool types. A small number of sites have a large amount of material from deliberate heating, while the majority of other sites, such as megalithic graves, causedew enclosures and palisades have a smaller number of objects partly altered by fire, primarily axes. These deposits are also combined with waste from the manufacturing of axes, combining “birth” and “death”.

TH1-26 Abstract 04
From the living to the dead. Lithic artefact deposits in TRB burials in Jutland

Author - Czudrowska, Marzena, Aarhus University, Wroclaw, Poland (Presenting author)

Keywords: Burial, Lithics, TRB

Presentation Preference - Oral

From the Neolithic 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, hill houses and graves. Several traditions of treatment and handling of flint such as ritual destruction, burning or scratching the surface of the artefacts were recognized. In this paper, special emphasis is placed on possible role and meaning of lithics in TRB burial ceremony. Artefact analyses were divided in two major parts. First, the technology of production and the possible traces of use found on flakes, blades and tools were discussed. The second part consisted of statistical analysis of lithic artefact type variation and their possible relation to other grave goods. The results were then compared to the ones obtained from material from TRB settlements. This leads to the general discussion about the interpretation of role and meaning of flint in the burial context. By using such combination of methods, it is possible to discuss different reasons for placement of lithics in the burial context. Various artefacts could be interpreted either as a part of the grave goods set (accessories for further life in afterworld), the belongings of the deceased (which could signify his status or occupation during life) or traces of ritual knapping or other activities during the burial ceremony.

TH1-26 Abstract 05
The biography of megalithic art at Millin Bay, Northern Ireland

Author - Dr. Robin, Guillaume, University of Edinburgh, Edinburgh, United Kingdom (Presenting author)

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 reordered 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?
Interpreting the Archaeological Record

Despite the descending importance of lithic industry at the end of Eneolithic, highly attractive morphotypes – lithic arrowheads – were no longer inter alia used in Central European social life, and later became part of the religious area. We may suppose that analyzed assemblage consists of a set of elements that were used and played different roles in everyday life, and later became part of the religious area. The Jordanów Group, considered as a late stage of Lengyel-Potigar complex in the upper and middle Odra river basin, was represented by 24 graves. Male and female graves were equipped - in many cases very wealthy - with vessels, copper and shell jewelry, copper tools, antler axes and flint retouched tools and blades. It is believed that at least some of the objects placed there, such as antler or stone tools, are often found in settlement structures as well. In respect to the position of the artifacts within the burial pits we may suppose that these grave gifts were intended to express someone's personal equipment or were exactly personal equipment. Usewear analysis of flint arrowheads from Domasław show that tools were intensively used for various, but limited purposes. Chromatographic analysis of ceramic vessels found in these graves indicate that different forms of vessels were used for storing and preparing particular vegetal or animal products and their contents precisely correspond with the identification of the deceased. This examination allows us to infer the multiple stages and 'chains of practices' involved in the production, use and reuse of the Domasław 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 funerary sites. This paper will consider Milin Bay in its broader context, with reference to wider evidence of reused 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. In the conclusion we will try to discuss the possible underlying reasons behind particular choices made by the prehistoric communities regarding the grave goods deposited together with the deceased.

Presentation Preference - Oral

Keywords: Eneolithic, grave goods, usewear and GC-MS

TH1-26 Abstract 08
Useful, beautiful or ritual?
The life biography of grave goods from prehistoric burial sites

Author: Kogalniceanu, Raluca, Institute of Archaeology, Bucharest, Bucharest, Romania (Presenting author)

Keywords: grave goods, Prehistory, South-East Europe

Presentation Preference - Oral

TH1-26 Abstract 09
Function and meaning of stones from the grave of the Globular Amfora Culture in Wilczyce (Poland)

Author: MA (Mg) Kieneder-Gubala, Katarzyna, Institute of Archaeology and Ethnology Polish Academy of Science, Warsaw, Poland (Presenting author)

Co-author(s) - Boroch, 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 stoneware with stone floors, as well as with a grave goods are known. The Wilczyce site is located in southern part of Poland, in the Sandimierz Upland. The site is well known from earlier publications as one of the most important (magalithic) 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 orclad soil platform on the perimeter of grave pit. In the vicinity there were also equipment, such as wrist guards, copper daggers or battle axes, sometimes appear in wealthy female graves, too. Arrowheads are traditionally interpreted as a typical attribute of warriors because alimentary importance of hunting is minimal in that epoch. Nevertheless, their presence in burial grounds and settlements is low. Only a small part of male graves include arrowheads. And only a small part of them include more than a single specimen. Archery sets are not frequent. Together with other indicators – rare goods of shooting injuries on axones, questionable functionality of wrist guards, low percentage of diagnostic impact fracture of arrowhead tip – it makes us to interpret arrowheads as only a symbolic attribute of male warrior troops crystallizing in that turbulent times. Nevertheless, our results testify to a long practical life of the majority of analysed arrowheads from different contemporary cultures; despite the fact that the deposition of arrowheads in graves is undoubtedly symbolic. We see a cyclic operational sequence with several reparations of tip fracture, practical ergonomic-ballistic features, patina of sweat use-wear and systematic care for functional condition of projectiles. This kind of manipulation is not only practical or useful. Weapons repair, sharpening, inspecting etc. plays an important role in warriors’ ritualized inter-community behaviour. Warrior grave goods are accompanied by trophy artefacts in graves of some cultures; and we can suppose that the deep symbolism of trophy game hunting was closely tied with ritualized fraternisation of members in male warrior brotherhoods.
Interpreting the Archaeological Record

The role of chipped stone artefacts in the Late Neolithic burial practice at Alsónyék (Hungary)

Author: Saliagi, Kata, Eötvös Loránd University, Budapest, Hungary (Presenting author)

Keywords: Chipped stone tools, Late Neolithic, Lengyel culture

Presentation Preference - Oral

The Late Neolithic Alsónyék-Bigaszék site has enormous extension, which reflects in large amount of stone tools (nearly 8000 pieces of stone tools). This site’s chipped stone assemblage contains many long-distance import stone tools (e.g., large-size vohynian flint blades which were removed by indirect percussion). The enormous extension of this site and structured construction of the settlement and a lot of burials: these factors which we can reason the intensive intercultural connections of the Southeast-Transdanubian group of the Late Neolithic Lengyel culture. This hypothesis is not reflected from the settlement’s chipped stone tools, in contrast to the stone tools from burials These shows the raw material manipulation’s role inside the site. Based on these, we find the everyday’s ingredient tools (e.g.: blade, end-scraper on blade and end-scraper on flake) form local and regional raw materials. The long-distance raw materials made import tools from burials means the ritual sphere’s artefacts.

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

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

Keywords: depoisations, biographies, amber, antler, Norway, ornaments, late Neolithic

Presentation Preference - Oral

In the coastal region of north-western Norway, pendants of amber constitute a characteristic element amongst the many objects deposited mainly in bogs in the late Neolithic (c. 2350-1700 BC). The pendants are of different shapes and sizes. Of particular interest are the crescent-shaped pendants that originally formed part of larger composite ornaments. These ornaments are also found in amber 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 depoisations from the late Neolithic and early Bronze Age in Norway, the crescent-shaped ornaments have been interpreted as votive offerings. However, this hypothesis does not necessarily provide the best tool for understanding the ornaments and their deposition. In the present study of the ornaments in both amber and antler, a biographical approach is applied, focusing on the relations tied to the objects during their life-course. Against this backdrop, an alternative view of the ornaments, their role in society and the final deposition is presented.

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

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Keywords: Amber, Daktariškė 5, Late Neolithic

Presentation Preference - Poster

This paper concerns on stone artefacts from the Globular Amphora Culture grave from Wilczyce and the possibilities of interpretation of their primary function as well as traces of its intentional ‘ritual use’ and/or ‘use in rituals’, on the base of the analysis of their spread in grave, as well as macro- and microscopic features.

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

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Keywords: ritual objects, shrine, traces

Presentation Preference - Poster

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

The shrine is positioned on a small hill and it communicates visually with the settlement. It was used by the inhabitants from this settlement and probably from another nearby. Throughout the excavations there were found various ceramic dishes, zoomorphic and anthropomorphic figurines, altars (sacrilic 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 religious ceremonies.

It is interesting that around these spaces, no remains of waste-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 Daktariškė 5 Neolithic Site: Archaeology, Use-Wear, Infrared and Raman Spectroscopy

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Keywords: Amber, Daktariškė 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 Sveton and Curonian peninsula (Juodkrantė, Nida). From the area of big lakes, mainly Blyžušis Basin the largest collection of amber artefacts are collected in Daktariškė 5 Neolithic settlement located in the wetland area.

The Daktariškė 5 disc is 3.6 cm in diameter and has a line-shaped cross-section with a small hole in the centre; it has a fine polished surface and is made from good-quality yellowish amber. One side of artefact is divided in four unequal parts by a triple cross made of slight indentations. Along the edges one, two and four small triangles are formed in single and double 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 these indentations.

By this reason special traseological, infrared and Raman spectroscopy investigation were carried out by the scientists of Vilnius Academy of Arts, Klaipeda University, Lithuanian National Museum and Center for Physical Sciences and Technology of State science institute.

Traseological analysis was conducted on amber disc from the Daktariškė 5 Neolithic site. During investigations, use-wear and manufacturing traces were detected on the artefact. Analysis showed that during production of the amber disc two different kind
of tools could have been used. Visible ornaments on the obverse and backside of the artefact differs not only in the geometrical pattern, but also differences are observed in the manufacturing of the ornaments, which shows that ornaments could have been made using different type of tools, i.e. iron and/or metal implant.

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

FTIR spectral analysis of dark substance from a pits as well as light red remnants from two scratches of ornamentation was carried out. The material possibly applied for decoration was identified to be a mixture of coniferous tree resin and probably some gum, bees wax and fat, while the red traces – aluminium silicate, red ochre and bees wax. The origin of the brown yellow spot on the surface of the artefact was analysed 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.

TH1-26 Abstract 15

Color Symbolism and its Reflection in Prehistory of Latvia

Author - PhD candidate Kokins, Aigars, University of Latvia, Faculty of Geography and Earth Sciences, Riga, Latvia (Presenting author)

Keywords: color, red, ochre, symbolism

Presentation Preference - Poster

There are many ways how to approach the study of history – archaeological evidences in excavation sites, dating methods, pollen analysis as well as stratigraphy of geological layers, DNA sequencing techniques for tracing migration routs, 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 (B–5, BCE) is closely associated with the usage of red 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 mesolithic and neolithic nomadic tribes.

The archaeological site Zvejnieki was excavated in 1960, and physical evidence of the colors that were used is no longer available. However, it is still possible to study indirectly the question about the mental and physical capacities involved, in order to recreate a span in time, where such activities as coloring a deceased family member was a valuable task to do.

In the study, the first questions to answer were weather there is naturally occurring ochre site in near proximity from burial grounds and in such case what are the material properties of ochre color and purity of the tone. Further research was directed to find out if modification of natural ochre could take place and what could be the range of colors possible to obtain from local material. At the same time information about similar symbolic behavior in other archaeological sites were studied. During the research the ochre source minerals were found near Stone Age cemetery Zvejnieki. The laboratory analysis for characterization of the material included granulometry evaluation, color spectrum, mineral treatment in various temperatures to alter the color and different natural binders were tested. In order to compare the color variation defined by impurities in the material, iron rich minerals were collected from different parts of Latvia. It should be noted that considerable amount of ochre color source material can be found in less than a 500 m distance near Zvejnieki archaeological site, but the colors are yellowish or brown (goliths). 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 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 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 Archaeological Record 27 (2016) 1190–1195

TH1-27 Abstract 01

The Personal Value of Correspondence: Letters as material culture in Late Antiquity

Author - Dr. Stone, Jo, University of Kent, Eastbourne, United Kingdom (Presenting author)

Keywords: Letters, Late Antiquity, Sentimental value

Presentation Preference - Oral

The period of Late Antiquity (approximately fourth to seventh centuries AD) has left us with a huge number of documentary texts, handwritten on papyrus and ostraca, and preserved by the arid conditions of Egypt and the Near East. These documents provide a rare glimpse into late antique society, and as such modern scholarship has tended to focus on the textual contents and its value as evidence of everyday life. Consequently, documentary texts are usually considered as utilitarian and ephemeral objects, whose primary function was to communicate information, after which they were likely discarded.

However, these rare survivals in the archaeological record suggest that informal texts were extensively used and thus had a significant presence within the material culture of Late Antiquity. Therefore it is important to consider these texts as complete objects and possessions that, like other artefacts, had biographies that created meaning and subsequent value. In this paper, texts – specifically private letters written between individuals – are considered in terms of their materiality and reframed as personal artefacts with the potential for significant value beyond utility.

By focusing upon private letters, it is clear that such texts can be deeply valued personal objects. Not only do letters physically trace connections between disparate individuals, but their lifespans also have the potential to extend significantly beyond the anticipated movement from writer to recipient. As such, they can function in ways that are separate from the communication of information. Furthermore, this paper concludes that specific letters are material gifts and, through reference to the theories of Mauss, Bell, Rööspring-Abel and Csikszentmihalyi, explores how their essentially handmade nature affected the creation of personal meaning and sentimental value.

The approaches taken to private letters in this paper allow these documents to be viewed once again as whole objects, retaining their material form to provide a more rounded view of such sources. It allows focus to be placed on the artefacts and possessions that are available at the centre of the current debate within scholarship on this period. By assessing and evaluating the ways in which we can look at documentary texts, we can better understand the different and often simultaneously held values present within individual objects, both from Late Antiquity and the medieval period.
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 social status for women – few empirical study on that question has been conducted.

The intention of my research was to investigate if we can tell from the brooches themselves whether they were inalienable personal possessions of the deceased or not. Can the theory that brooches were received at a certain age, were worn the whole life of a woman until death, and were eventually buried with her 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 their frequent occurrence in graves. While their value has traditionally been considered in terms of ‘wealth’, this term has proven to carry with it connotations that are incongruous when applied to objects considered to be inalienable personal possessions. One way to overcome this problem is to consider the value of items in terms of their possession, and how that value changed over time. In this paper I will examine: how the value of brooches changed between the fourth and seventh centuries AD; why their value changed; and the implications of this for understanding the shifting values of bodily adornment in this period.

TH1-27 Abstract 04
How much is that necklace in the coffin?
Grave wealth and grave robbery in early medieval Europe

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

Keywords: Artifacts, Burial, Early medieval

Presentation Preference: Oral

Grave robbery – a practice of reopening recent burials and taking objects from them – was widespread across early medieval Europe, peaking in the seventh century. Affected graves have been recorded in hundreds of cemeteries from eastern Austria to southern Scandinavia and the Eastern Baltic. 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) and 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 grave trajectories which could end in graves differed significantly between artefact types, especially in the degree and nature of objects’ connectedness with their owners. Evidence of different capacities for separation of the bodies with which they were eventually buried. An argument will therefore be made for low fungibility between many fifth- to seventh-century grave-good types: different forms of possession did not necessarily bear equivalent or interchangeable forms of value. Considerable complexity needs adding to our understanding of artefact worth in this period – in particular its emergence from interactions of human and object life courses.

TH1-27 Abstract 05
‘Cheap’ bone things, games and travel – on the value of gaming-pieces in an early medieval grave

Author: Zintl, Stephanie, Bayerisches Landesamt für Denkmalpflege, Thüringen, 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 dice. Accessories for board games are extremely rare in this period – often considered by archaeologists to be only of symbolic value. The gaming-pieces in Leipheim belong to a type not known in southern Germany so far, with the closest parallels being 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 elit 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 not be so much in the things themselves but rather in how and by whom they were used. They raise questions of where, how and from whom both the gaming accessories and, more importantly, familiarity with the concept of board games were acquired; and also whether their rarity in graves mirrors their restricted use in the living society, or only representational needs that only were relevant for some funerals. The presentation aims to explore these and also some more thoughts on where the idea of board games might have come from, and why gaming-pieces were so rarely put into graves.

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

Author: Dr. Hills, Catherine, University of Cambridge, Cambridge, United Kingdom (Presenting author)

Keywords: Amulets, Anglo-Saxon, Burial

Presentation Preference: Oral

Anglo-Saxon women’s graves of 5th-7th century sometimes include items which have been described and discussed as ‘amulets’, by Audrey Meaney (1981) and others. These are not functional dress fasteners or ornaments, although they may include broken brooches, brooch fittings or horse harnesses. There are also fragments of glass, pieces of Roman glass, pieces of bread, pieces of glass beads such as crystal, chalk or animal teeth. Some elements of necklaces such as pierced Roman or Iron Age coins can also be seen in this context. Bags containing one or more of these items have been shown by Fieuler (2014) to be associated with girdle-hangers, and interpreted as indications of the special status of the women who wore them: not straightforward social or wealth status, but relating to the role these women played possibly in connection with birth and death. This paper will look at some of these items to
see how their significance and use changes over time in different contexts, for example from a functional glass vessel to a worn broken fragment carefully kept and deposited in a grave. Questions to be asked include: what kind of “value” did these things have for the woman who were buried with them? Is the name “amulet” appropriate? Do these objects provide a link between pre-Christian and Christian burial practice in Anglo-Saxon England?


Meaney, A, 1981 Anglo-Saxon amulets and curing stones British Archaeological Reports 96

Archaeologists are increasingly focused on understanding the implications of social learning on the development of material culture. Such studies look to establish the roles of social learning, individual choice, and information transmission within cultural contexts. This study examines the contents of Blackfoot ceremonial bundles to investigate whether heritable continuity is evident in their assembly, allowing for inferences regarding social learning, cultural transmission, and transmission bias among proto-contact Blackfoot bundle-holders. Among the contact-era Blackfoot, flexible concepts of the value of different material objects enabled individual bundle-holders to respond creatively when presented with historical, environmental, and social contingencies - and this fluidity is mirrored in ceremonial bundle materials. This study seeks to illuminate the relationships between bundle contents and their distribution in various bundle types as indicators of socially-prescribed and maintained traditions. As such, we hypothesise that rules prescribing a communal value to specific bundle contents were more or less flexible depending on the level of social significance attributed to the ceremonies connected to each bundle under the assumption that the greater the overall social significance of a bundle's associated ceremonial practice, the more constrained bundle-holders were in the development or maintenance of particular contents. In contrast, bundle-holders in possession of bundles associated more closely with personal practice were able to embellish the contents of those bundles under less-prescribed social constraints.

Value-added gold: The physical, social, and cultural re-purposing of Scandinavian bracteates

Author - Prof. Wacker, 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 Boeufow. Among the elite articles of personal adornment during this period were the widely distributed Scandinavian-type bracteates, which are one-sided, stamped objects that were provided with suspension loops and worn as pendants. These bracteates may have been markers of prestige to indicate gender, marital status, age, and lineage. The biography of bracteates can be traced from the mining of gold as a raw material, to Late Roman coins and medallions given as military rewards, and then to northern goldsmiths’ workshops where the coinage was melted down and made into bracteates. Thus the gold was transformed from material with economic value in one form (coins) into value in another form as personal ornaments that were distributed by gift exchange and worn by women. The significance and worth of these possessions continued to change as they were 1) given to others (perhaps bequeathed to descendants), 2) purposefully deposited into the ground in burials or hoards (curated and taken out of circulation), 3) melted down and re-purposed to other jewelry (permanently taken out of circulation), or 4) lost – perhaps to be rediscovered later. Subsequently, gold bracteates have been discovered by archaeologists, isotopes, 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.

The things with value. An ontological investigation

Author - Van Vliet, Krista, Stockholms Universitet, Värmdö, 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 statues of these notions remain largely unexplored. This is problematic, for the reason that it leaves us in the dark about what we are actually talking about and, even more important, it hampers conclusions and beliefs about the nature of the world equivalent. Inspired by Deleuze, Guattari, and DeLanda, but also by Lucas, Fowler and Normark, I propose to investigate ‘value’ and ‘possession’ not as references to other abstractions, but as concepts and as such as entities that are active parts of the archaeological record. Being entities themselves, they are connected to and interact with other entities within and outside the archaeological record (e.g. books, brochures, archaeologists, ideas, animals, pots, voices). Challenging the idea of the preeminence of human intention, I argue, that it is these relations and interactions that continuously define and redefine ‘value’ and ‘possession’.

Consequently, objects are not passive receivers or holders of worth either, nor are they indifferently imbued with ideas of value or meaning, but are (re)defined by the interactions they establish with other entities that may or may not include notions of value or possession.

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

Materializing worth and value in archaeological beads

Author - Dr. Miller, Holly, University of Nottingham, Nottingham, United Kingdom (Presenting author)
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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 artifacts that are still under-studied and under-theorized in this way, such as beads. Understanding the sociocultural-economic significance of beads is obscured by their general classification, through typological assessments, as “ornamentation.” This implies outward-looking, visually driven social practice with decorative purpose, limiting interpretation of value and worth to societies and individuals. Beads, like any aspect of material cultures, 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
TH1-27 Abstract 12

More luxury for common people than we thought before: Asian items in medieval and later Europe

Author - Dr. Jea, 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 archaeological research of the last decades in the whole of Europe added numerous of finds in different social environments. My contribution to the congress introduces these items and categories of objects inside their social contexts. With the increase of archaeological excavations the rate of finds continues to rise. That’s why our conception from a perception of the eastern continent in the west changes.

Medieval users of suchlike items possessed a potential knowledge, in that case about a distant continent. Thereby it makes no difference if this knowledge was reality or wishful thinking. Often this knowledge concentrated in lordly circles. Nevertheless many of these objects connected with a daily nutrition. The property and frequently use of respective objects in the medieval and later civil society was able to break through the controlling of the knowledge.

Another question weighs the aspects of a globalisation. The existing contacts of the Trans-Eurasian exchanges until the discovery of the maritime route from Europe to India often were selective. Just a few of contacts stretched steadily over the time. Most of them were unilateral; rarely bilateral. One has to question how comprehensive been these contacts inside the Trans-Eurasian exchanges. Which region had an amount? How tall was a mutual influencing? A higher measure of a mutual interacing is certifiable. However the notion of a globalisation seems not quite appropriate for this period of history.

TH1-27 Abstract 13

Striking Objects: Comparing the metal used for Roman copper-alloy coinage and domestic artefacts

Author - Dr. Peter, Bray, University of Oxford, Ruislip, United Kingdom (Presenting author)

Keywords: Chemical analysis, Roman Coins, Value

Presentation Preference - Oral

Roman coinage sits at the intersection of a remarkable number of research projects. The art history and iconography of the images stamped on the coins, and the detailed chronology they can create are both full-time 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 metalurgy, Roman coins are an astonishing opportunity for examining pellets of copper-alloy that are often stamped with a date, place, and value.

Due to the richness of the data immediately associated with the coins, it is sometimes hard to consider them within the broader context of Roman metal use. This paper highlights new approaches to synthesising and characterising the large corpus of chemical data taken from Roman coins over the last two hundred years. These approaches emphasise the flow of metal and ideas, and the negotiated creation of value and identity. The contemporary domestic metal 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.

TH1-27 Abstract 14

Moulding meanings. Late Bronze Age valuables through the organisation of metalworking

Author - PhD student Sörman, Anna, Stockholm University, Stockholm, Sweden (Presenting author)

Keywords: Craft organisation, Late Bronze Age, Prestige goods

Presentation Preference - Oral

Metalwork from the Late Bronze Age of southern Scandinavia includes a wide range of high-quality prestige goods for personal display, ritual and gift giving. The production of these highly valued bronzes is generally understood as centred by community elites and assumed to have been carried out at exclusive workshop sites. The investement of socio-political and religious power into these prestige objects is thus typically portrayed as an outcome of ritualisation and highly exotic specialised crafnted linked to ritual and exclusive settings in aristocratic milieu. This reflects a common notion where exclusive objects are assumed to gain their value in exclusive settings and through exclusive skills. However, tracing the production contexts of prestige goods in the archaeological record shows that the manufacturing of these valuables was staged in many different ways, none of which seem to reflect exclusive and exotic workshops sites. Looking closer at the organisation of production of valuable craft objects shows that crafting events were staged in many different arenas. In this paper I will discuss how the organisation of metalworking can illuminate the creation of power and value of prestigious possessions of Late Bronze Age Scandinavia beyond the assumption of exclusive workshops for exclusive values. I will discuss how (1) the context and staging of production, (2) the intended bearer of the object, and (3) the citation to older objects all worked as important ingredients in the act of producing powerful possessions.

TH1-27 Abstract 15

Fragility and Frivolity: the perceived value of 15th-18th century glass in the Eastern Adriatic

Author - Garwood, Samantha, The University of Sheffield, Sheffield, United Kingdom (Presenting author)

Keywords: Glass, Value

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 production cost of glassware meant that members of lower social classes could also afford to purchase glass objects and display them in their homes with objects of luxury.

Unlike more durable forms of material culture circulated at the time, part of the allure of glass was its fragility and ephemerality. Of course, this means that these objects rarely reach us today as much more than small rim fragments, and their value in their original context is not always readily apparent. This paper will explore these issues of value and worth through late 15th to early 18th century glass excavated along the eastern Adriatic coast, looking at Venetian-style glass’s rise in popularity up until its decline in public favour, and will also consider the newfound value which modern archaeologists place on these artefacts.

TH1-27 Abstract 16

More than a pleasing form of real estate: what is a valuable textile and how do we identify it?

Author - Dr. Harris, Susanna, University of Glasgow, Glasgow, United Kingdom (Presenting author)

Keywords: Artefact, Textile, Value

Presentation Preference - Oral

Until recently textiles in archaeology were studied predominantly in terms of the technology of production and the social identity of clothing. Lately scholars have recognised the expense of textiles in terms of labour and resources, which addresses the question of value largely through an economic perspective. We may ask more broadly: why were textiles valued, what for, by whom, and were some textiles valued more highly than others? This raises deeper theoretical concerns in understanding textiles as a specific form of valued material culture. Such theoretical concerns need to be addressed in archaeological methodologies of artefact analysis. In this paper I suggest that there are five principle ways archaeologists can recognise the value of textile through the material record: through materials with affordances, in terms of expense and exclusivity, as artefact biographies, as items with conspicuous, sensory appeal and in terms of fungibility. By addressing value, rather than wealth or prestige, we open up questions as to how textiles were valued across social matrices, according to changing ambitions during the life course and through the biography of the textile. Textile value will be explored through archaeological evidence in Mediterranean Europe from 1000-500 BC.
THI-27 Abstract 17

Interpreting the Archaeological Record

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Co-author(s): Lippinck, Sam, University of Oulu, Oulu, Finland
Keywords: Secondary use, Textiles, Value
Presentation Preference: Oral

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

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

THI-27 Abstract 18

Valuable pots made with cheap clay.

A biographical approach of the pottery from Sultana-Malu Rosu

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Keywords: biography, Eneolithic, pottery
Presentation Preference: Oral

The Eneolithic site of Sultana-Malu Rosu (Romania) is well known in the overall framework of the Gumelnita-Kodjadermen- Karanovo VI cultural complex (ca. 4500-3800 BC) due to the large amount of good quality pottery, among which some of the vessels are unique in terms of shape and decoration. These characteristics are the ones that assign value and special meaning for vessels according to both old and new interpretations. However, most of the pottery from this site is represented by common vessels and other thousands of shards. Also, the site formation has its own identity with the final contexts of the pottery varying from crushed shards used as temper (grog) to whole vessels assembled in burnt houses or used in mortuary practices.

The plan 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 analysis, identifying manufacturing technologies, morphological and typological classification, wear-use analysis, and fragmentation patterns. This approach can establish certain pathways and changes in the vessels’ life, addressing various interpretations of the value and meaning of the objects at every stage of their existence.

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THI-27 Abstract 19

The revaluation of pottery manufactures

in the Basque Country along the Middle Ages

Author: Dr. Escobado-Ruiz, Bergio, University of the Basque Country UPV/EHU), Vitoria-Gasteiz, Spain (Presenting author)
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Co-author(s): Bielou, Jose Luis, University of the Basque Country (UPV/EHU), Vitoria-Gasteiz, Spain
Presentation Preference: Oral

The patterns of domestic pottery consumption progressively changed over the Middle Ages in the Basque Country. Although some productions present since the 7th Century remained beyond the 15th Century, the ceramic record was completely transformed both quantitatively and qualitatively up to the point that the in the ceramic record of the 15th Century they have barely any points in common. One of the implications of this process is the change of value of the productions prevailing in the light of the invention of new products, generating a progressive latent transvaluation in the ceramic record. Thus, the new also constantly detracted the value of the old.

With this paper, we wish to characterise the transformation of the ceramic record between the 7th and 15th Centuries, understood as a response to a material order established. Among the factors that generated this dis-equilibrium of this order and its re-generation, we will analyse the importance of the circulation networks as agents of change in demand and production, more and more directed at new ceramic products with greater sensorial capacity. The introduction of glazed, painted pottery to the tables of the aristocracy set a new sensory aesthetic that ended up transforming the local productive horizon. An interpretative model would emerge from these considerations that explain the progressive changes to the Basque ceramic record over the Middle Ages as a chained process. First new products were imported that changed consumption patterns and then technological innovation processes were initiated that resulted in their taking root on a regional scale.

When it comes to understanding the reasons that justify this process of transvaluation of the ceramic record, we will explore the potential of the communicative value of pottery in its social context of use as a key explanatory factor. For this purpose, we will evaluate the role of pottery in the non-verbal processes of communication and its suitability in the social construct strategies of inequality. Lastly, we will evaluate up to what point the diachronic process that is produced between the capacity of social action of pottery and the adaptability of the regional production system to the new pottery types enables us to explain the nature of the medieval ceramic register in the Basque Country.
Interpreting the Archaeological Record

TH1-27 Abstract 21
Fluid Fungibles: The Politics of Value in Archaeology of the Early Medieval Volga Trade

Author - Dr. Birgir Sigurjónsson, University of Iceland, Reykjavik, Iceland (Presenting author)
Keywords: Medieval Age, 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 meanings (objects and goods) were put to old ends in the process of social exchange. Namely, how items such as coins, belt sets, and beads, were circulated among the specific communities, and then taken out of circulation in the process of ritual (burial) action—and in some instances, extracted again. The aim is to show how the politics of value developed during this period of trade and affected the participating communities. The problems connected with archaeological interpretation of these processes will also be addressed.

TH1-27 Abstract 22
Beads, Bells & Baubles: The indigenous Caribbean (re)valuation of Spanish trade goods (c. 1492-1550)

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

This paper juxtaposes archaeological and ethnohistorical sources to explore the early colonial indigenous Caribbean use and valuation of European-introduced goods acquired through systems of barter and gift-giving. Historical accounts written by European chroniclers describe the indigenous eagerness to obtain novel Spanish goods as well as the pace with which such articles were absorbed into indigenous networks. The cross-cultural exchange of exotic objects affected the convergence, transformation, and recreation of indigenous and European material culture repertoires and value systems. In contrast to the historical accounts, which have always been an invaluable resource for studying the material dynamics of this encounter, archaeological evidences of the abovementioned processes has often been underexploited. In this paper, I will discuss early European-introduced materials which have been archaeologically recovered from indigenous contexts in the Greater Antilles, in particular on the island of Hispaniola. With archaeological data it can be revealed how objects of exotic origin were integrated into existing material culture practices, providing clues about their past use and value. Aiming to advance our understanding of the materiality of things in this encounter, I demonstrate how the Americanist recontextualization and reinterpretation of European trade goods drastically changed the way such objects were valued, and continued to do so once adopted by indigenous communities.

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 Alban’s in Odense he “… was at that time the bishop’s church…” (“item tempore sedes et episcopalis…”). This reference by an unknown author in a commemorative text of King Canute the Holy indicates that St Albans church functioned as a bishop’s cathedral until 1095, when the king’s body and St Albans 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 Alban’s, supporting the designation of St. Alban’s as a cathedral in 11th century. This is the period of the foundation of the Danish Church, and a number of questions emerge when analyzing the bishop as well as the grave and its context. The paper will primarily address two questions: What are the origins of the bishop in the grave and with which archbishopric and/or 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 archdiocese 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 Alban’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
A landscape of belief: Orkney’s medieval churches

Author: Dr. Gibbon, Sarah Jane, University of the Highlands and Islands, Kirkwall, United Kingdom (Presenting author)

Keywords: church, landscape, Orkney

Presentation Preference - Oral

Over two hundred churches were founded in Orkney in the eleventh and twelfth centuries. This paper will explore the various functions of these churches by considering them in their landscape contexts as a means of overcoming the lack of contemporary written sources relating to them.

The churches can be grouped according to three different landscape settings: proprietary churches located in close proximity to central places within settlement units (townships); isolated churches located some distance from known settlements; and churches located in royal territories separated from settlement focus but not isolated. In addition to identifying different types of churches, some sense of chronology and religious development within the Orkney Earldom will be presented, mapping the transition from the forced conversion of the islands by Olaf Tryggvason in 995 to the creation of an urban diocesan centre, part of the newly created archdiocese of Nidaros, in 1152/3.

CHAPELS, CHURCH SITES AND SETTLEMENT IN MEDIEVAL FAROE ISLANDS

Author - Arge, Simun Vilhelm, Faroese National Heritage, Tórshavn, Faroe Islands (Presenting author)

Keywords: church, 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 churches - maybe even remains representing the early Christianisation process. But because of the lack of church archaeological investigations our knowledge of the Faroese Medieval church is quite limited. The paper will discuss the characterisation of the archaeological material at hand based on an ongoing project involving surveys and investigations of possible church ruins. In an attempt to understand these relics - their relation and function within the Medieval church in the Faroes - they will be placed in a settlement-historical as well as in a North Atlantic context.

Novel topographical surveys and analysis of ecclesiastical sites in the Faroe Islands

Author - Michelsen, Helgi Dal, Faroese National Museum, Høvøk, 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 Bønali (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 as a means of explaining where 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 archeological data to use locally and across the North Atlantic region. The methods used in the project are a combination of topographical surveying, Geo-radar survey and archaeological test excavations. The topographic mapping is made by a combination of Structure from Motion (SFM) and Methodsologies (DSM). The collected data are analysed, visualised and compared in an ArcGIS environment. This paper will present the preliminary results of the project.
TH1-28 Abstract 08

Communities of death in medieval Iceland

Author: Prof. Vésteinsson, Orn, University of Iceland, Reykjavik, Iceland (Presenting author)

Keywords: church, Iceland, Medieval

Presentation Preference: Oral

In Iceland, the introduction of Christianity around 1000 AD was associated with fundamental changes in burial customs. In pre-Christian times each farm had its own cemetery but under the new custom only about a half of the farms had churches with cemeteries. Farms without a church and cemetery are as a rule those of lower status and their occupants presumably buried their dead either in their neighbours’ cemeteries or (if different) in the cemetery of their patron or landlord. Already within the first century of Christian practice the small farm-based churches began to lose their number and the 12th and 13th centuries are characterized by their continued decline and by increasing centralisation of functions in churches which would eventually become parish centres. The paper will explore how this development, from private to communal cemeteries, reflects fundamental changes in community organisation and social structure.

TH1-28 Abstract 09

"Small churches" in Norse Greenland – what became of them?

Author: Dr. Arneborg, Jette, Danish National Museum, Copenhagen, Denmark (Presenting author)

Keywords: Churches and church-farms, Norse Greenland, reorganisation of ecclesiastical landscape

Presentation Preference: Oral

Greenland was settled in the later part of the 10th century when Christianity had been introduced in northern Europe. Christianity was a part of the settlers’ kit, and churches and churchyards were built on the farms from the very beginning of settlement. The churches were built close to the farmhouses, and they were characterised by their “secular” architecture, small size, and a surrounding circular, or sub-circular, enclosure. During the 13th century the early churchyards were taken out of use, as were apparently the church buildings, and a number of farms lost their status as church farms. In the same period new and larger churches were built either on earlier church farms or on newly established ones, now adapting “traditional” church building architecture known in Scandinavia. Based on archaeological excavations of “small churches” 2001 – 2010 I will explore the changes in Norse Greenlandic church building in the context of ecclesiastical and community organisation.

TH1-28 Abstract 10

A World apart? Burial rites in a Scottish Carmelite Friary

Author: Hall, Derek, Stirling University, Perth, United Kingdom (Presenting author)

Keywords: Carmelites, leather shoes, wooden staff

Presentation Preference: Poster

Ongoing excavations of the site of the medieval Carmelite Friary of Tullibarn in Perth, Scotland in advance of its redevelopment have located at least 300 human burials in the friary church. The earliest group of these burials are consistently buried with wooden ‘staffs’ which are apparently not functional objects but symbolic and two of the other burials were found to be wearing leather footwear. This paper will consider the meaning and significance of these and other unusual burial rites from the site in comparison with other similar examples from England and Scandinavia.

TH1-29 Abstract 01

Rocking the Cradle of Scotland

Author: Prof. Driscoll, Stephen, University of Glasgow, Glasgow, United Kingdom (Presenting author)

Keywords: 3D animation, Excavation, Museum

Presentation Preference: Oral

The Cradle of Scotland was a museum exhibition generated by the 10-year long research project into the archaeology in the heart of Scotland, the Strathgalloway Environ & Royal Forteviot project (http://www.gla.ac.uk/schools/humanities/research/archaeology/research/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 scats and detailed paintings illustrating key moments in narratives of different sites. The exhibition provided a great stimulus for interpreting the site and allowed us to work with a range of and interpretative artists, from traditional archaeological illustrators to re-enactors and digital designers. The exhibition generated a series of striking and successful representations of the discoveries. This paper provides the first public opportunity to reflect on questions about authenticity, accuracy and accessibility raised by these efforts following their exposure to audiences. This paper also constitutes a step in critical process leading to the final academic publication of the results of the study.
Interpreting the Archaeological Record

TH1 Abstract 02
Reconstructing the Past

Author: BA Gerrit Jaco, Schilp, Reinwardt Academy, Utrecht, Netherlands (Presenting author)
Keywords: Archaeological reconstructions, Museological theory, Open air museum

Presentation Preference: Oral

One way in which archaeological research can be made accessible to the public is through the use of reconstructions. These can be found in museums, parks, and other public spaces throughout the world. The use of reconstructions can help to bring the past to life for visitors and to educate them about the history of a particular place. The presentation will discuss the role of reconstructions in archaeological research and how they can be used to engage the public with the past.

Keywords: Archaeological reconstructions, Museological theory, Open air museum.
The Art of Perception in Archaeological Visualisations

Author: Wilson, Kelvin

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 head 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 tied to places, and are recreated in landscapes and architecture. Indeed, a building may successfully copy plenty of details of its past design. Yet an enthralling visitor could have only ever had one perspective: a building's interior scale determined by its walls, the appreciation of its exterior too often by the weather (and one person never under the spell of both at the same time). A tired 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 underlying its very opposite: reconstructions made to the dictates of data. To bring the two opposites together - whether in full-scale architectural visualisations, as reconstruction art in the media, or in future multidimensional developments - the central issue is to ask a plain question: “what did one need to know?”. There are instances where the answer has altered the interpretation of the archaeology - bringing back the focus to what might have truly occupied the mind of a person in the past, or merely pointing out the best place he might have left that sponge. The discrepancies between visualisations, with on one side multi-period sites being ‘read like a plan’ and reconstructed accordingly, and opposite the ‘one moment at a time’ view visual artists may help re-experience, were discussed in a series of English Heritage-funded workshops and conferences at the University of Southampton. This paper expands on statements and case studies made by the author there and in follow-up meetings.

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

Author: Lic. phil. I Kraese, Jeanette, Office du Patrimoine et de l’archéologie du canton de Neuchâtel, Haueterive, Switzerland (Presenting author)

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. Two important new generations 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 investigations proved positive, a major research programme was set up that involved a team of some twenty archaeologists and specialists from the earth and life sciences.

Test-pitting and trenching across two-thirds of the width (1.3 km) of the upstream part of the delta, followed by excavations and the detailed documentation and sampling of the complex stratigraphies, have revealed a remarkable history of alluvial change and human occupation that covers the last 11,000 years. Over forty palaeochannels have been identified, dating from the Preboreal (c. 9,000 BC) to the post-Medieval period, and since the Middle Neolithic most channels were found to contain archaeological remains.

Five reconstruction drawings representing the alluvial plain of the Areuse River during the Older Atlantic period, the Middle Neolithic, the Late Bronze Age; the Roman period and the Early Medieval period were created in order to illustrate the synthesis of the interdisciplinary study. The aim of these drawings is to visualize the evolution of environmental change and human impact in the study area over a period of 8,000 years. The presentation will focus on the criteria applied during the preparative phase of the drawings to select the archaeological periods to be portrayed and the choices made relating to the depiction of such features as size 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.

Virtual communication at the great medieval Castrum Tunsbergis

Author: Archaeologist Gustavsen, Cecilia, Slottsfjellsmuseet, Tunsberg, Norway (Presenting author)

Co-author(s): Fehre, Lena, Slottsfjellsmuseet, Tunsberg, Norway

Keywords: Digital communication, illustration, Reconstruction

Presentation Preference: Oral

Stotsfjellsmuseet, a museum in the medieval town Tunsberg in Norway, is participating in a working group that will improve, renew and develop the well-knownarchaeological site “Castrum Tunsbergis”. Today’s ruins have few information spots, and the audience often don’t know what the place has been like. Stotsfjellsmuseet 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 beacon technology connected to the site. In 2013 we made our first digital reconstruction of the castle of how it could have looked like in 1373 AD. New results from geophysical methods show new structures on the site, which is of interest for future reconstructions. In this paper, we will discuss the advantages and drawbacks by virtual presentations in the light of our archaeological site, Castrum Tunsbergis.

The Art of Perception in Archaeological Visualisations

Author: Wilson, Kelvin

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 head 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.

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THI-29 Abstract 10

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

**Author:** Elt, Martin Malcolm, Portuguese Studies Review / Baywolf Press, Peterborough, Canada (Presenting author)

**Keywords:** Islamic, Portuguese, Morocco, Ksar es-Seghir, methodology, reverse mapping, GIS, validation of data

**Presentation Preference:** Oral

The present study reflects the results of a multi-level forensic analysis of architectural 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 Aby YaquIQ Ygau to Aby al-aslan AT”, in Stéphane Prud'homme, ed., Architecture militaire du litoral, de la conquête Arabe à l’Empire Ottoman (Cairo: IFAO, 2016) and partly published as “Contours of Battle: Chronicles, GIS, and Topography—A Spatial Decoding of the Portuguese Siege of Tangier, September to October 1437”, Portuguese Studies Review 21 (2) (2013, rel. 2016): 1-135 (Portugal and its Empire, 1128-1609: A Volume of Papers in Honour of Francis Dutta ). 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 du Patrimoine Culturel (Morocco). In the final stage, the project then proceeded to engage critically with various interpretive traps, possible omissions, likely flaws, or failures of coherence detectable in existing models of the locality (Ksar es-Seghir) as products of the long-run inter-disciplinary research covering Ksar es-Seghir. The goal was to shed light on the variety of processes through which diachronically cumulative errors of interpretation or modeling traps may arise. The conference presentation seeks to highlight issues of methodology and procedure, particularly with regard to interpretation, reconstruction, and resulting overall visualization.

THI-29 Abstract 11

**Reconstructing the Form of Late Neolithic Rondels**

**Author:** Dr. Kléty, Jaroslav, Institute of Archaeology CAS, Prague, Praha, Czech Republic (Presenting author)

**Co-author(s):** Varečka, Petr, Institute of Archaeology CAS, Prague, Praha, Czech Republic

**Keywords:** Enclosures, Neolithic, Virtual reality

**Presentation Preference:** Poster

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

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

THI-29 Abstract 12

**From archaeology to the restoration: the reconstruction of tile stoves in the New Jerusalem**

**Author:** Glazounova, Olga, Institute of Archaeology of RAS, Moscow, Russian Federation (Presenting author)

**Keywords:** 17th century, New Jerusalem Monastery, the reconstruction of tile stoves

**Presentation Preference:** Poster

Workshops of the New Jerusalem Monastery are deservedly considered as one of the main sources of Russian production of the tile. During the excavations of recent years it was discovered a huge number (over 50,000) of previously unknown stove tiles. The tile workshops, kilns, stocks of finished products and remains of standing ovens were excavated. A lot of store tile walls were found near the base of these ovens.

Patriarch Nikon laid the foundations of a tile business in Russia. He invited artists from different regions and from other countries. Among ovens of the 17th century, we see the ovens, the roots of which can be found in Northern Europe, Italy, different regions of Belarus, in the Trinity-Sergius Lavra, Moscow. Later New Jerusalem craftsmen formed their own original style with special local appearance of tiles. At the beginning of the 18th century Peter I sent two Swedish prisoners for the organization of the tile production in the New Jerusalem. They, apparently, were the authors of tiles with symbolic scenes. Of particular interest is the oven, lined with tiles with heraldic church and state subject.

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

THI-29 Abstract 13

**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):** Vitiel, Danilo, Università di Padova, Padova, Italy

**Keywords:** 3D modeling, open-source, RTI

**Presentation Preference:** Poster

This work aimed to develop a non-invasive and non-contact approach for studying a stamped Dressel 6B amphora from an urban excavation in Padova (Italy). We created a 3D model of the amphora using two methods of acquisition, laser scanning and photography, and processed with an 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 open-source software RTIBuilder. We got a PTM file viewed with the RTIViewer, which permits to observe the images using various rendering modes. The realistic and measured 3D model of the amphora let archaeologists to analyze 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 amphoras and RTI images of stamps might be the creation of open online databases of amphoras and stamps from the Mediterranean; measured and scaled reproductions of amphoras using 3D printers, to be used for archaeology educational museums or archaeology educational.
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 214

Author - Groß, Daniel, Centre for Baltic and Scandinavian Archaeology, Schleswig, Germany (Presenting author)
Co-author(s) - Colas, Nanterre Cedex, Faroe Islands
Co-author(s) - Liubeck, Centre for Baltic and Scandinavian Archaeology (ZBSA), Schleswig, Germany

Keywords: bone and antler tools, technology, typology

Presentation Preference - Regular session

Organic tools are an important aspect of prehistoric societies, especially in the Stone Age. Therefore the analyses of these can give deep insight into people's typological and technological constraints such as behaviours. Being widely available in hunter-gatherer communities osseous materials have to be considered as one of the main resource for tool production in the past.

However, in a European scale, the discovery of objects made with bone, antler and tooth is very irregular. Obviously, these contrasts are related to taphonomic issues but also to economical and cultural aspects.

The session “Evaluating the importance of osseous tools in the Early Holocene: a European perspective” is meant to deal with a wide range of topics related to the analyses of osseous material. Apart from classical approaches, especially technology and typology, we would like to integrate the results from other disciplines and approaches to discuss from a European perspective. For instance, archeozoology or use-wear analyses on bone and lithic tools can also be considered as crucial to a better understanding of the role osseous industries played in Early Holocene communities. This session will also be the occasion to debate taphonomic issues and various contexts of discoveries which influence the archaeological visibility of this group of tools.

Consequently we encourage researchers to address these and comparable questions from their own perspective and contribute to our session.

THI-30 Abstract 01
Evaluating the importance of osseous tools in the Early Holocene

Author - Groß, Daniel, Centre for Baltic and Scandinavian Archaeology, Schleswig, Germany (Presenting author)
Co-author(s) - Liubeck, Centre for Baltic and Scandinavian Archaeology (ZBSA), Schleswig, Germany

Keywords: Early Holocene, introduction, osseous tools

Presentation Preference - Oral

Organic tools are an important aspect of prehistoric societies, especially in the Stone Age. Therefore the analyses of these can give deep insight into people's typological and technological constraints such as behaviours. Being widely available in hunter-gatherer communities osseous materials have to be considered as one of the main resource for tool production in the past.

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THI-30 Abstract 02
Evolution in bone exploitation during the Late Mesolithic at Zamostje 2 (Russia)

Author - Teulot, Julien, Panthéon Sorbonne University, Champagne au Mont d'Or, France (Presenting author)
Co-author(s) - Lozovskaya, O.V., Institute for the History of Material Culture RAS, St Petersburg, Russian Federation

Keywords: Bone technology, Central Russia, Mesolithic

Presentation Preference - Oral

In Central Russia, perhaps more than in other places in Europe, bone industries are one of the most important components of the last hunter and fisher communities. During the Late Mesolithic (7000-6000 B.C.), bone equipment holds an essential place in the everyday life of these societies (Lozovskaya и Lozovsky, 2003). Past typological studies have long stressed the importance of such productions (Lozovski, 1998, 1999; Xünker, 2001). Nonetheless, a more technological approach has to be undertaken, and the characteristics of the technical traditions linked to the bone equipment have to be detailed. The material connected to the elk (Alces alces) deltaglia at Zamostje 2 offers the opportunity to do so (Lozovski et al., 2013; Lozovski et al., 2014). Throughout this period, communities mainly hunted elk (Chaz, 2003, 2009). Their skeletons were then used to produce blanks. However, according to the way of life of these groups, they seem to gradually change their technical features by stopping to use breaking by direct percussion for the benefit of breaking by indirect percussion and grooving techniques. This aspect should suggest interesting technical evolutions between the first and the second half of the Late Mesolithic, via a more important management of the osseous production. By comparing this data to other categories of material, it is possible to observe some fascinating technical and economical shifts around 6500 B.C which in turn illustrate some conceivable social evolutions at this time.

THI-30 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)

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

Presentation Preference - Oral

Pre-boreal and early Boreal post bog sites in the Volga-Oka interfluve produced a number of slotted bone arrowheads, javelin heads and daggers. Some of them preserved flint inserts in situ in slots fixed with glue. From typological point of view the majority of them are unrelated regular microlites. Some are trimmed with fine retouch along one lateral side. Scarce obliquely truncated microlites were used as barbs in arrowheads. Microscopic studies of these inserts preserved in slots of composite weapons showed distinct use-wear traces. Inserts of projectile heads expose more or less developed edge damage in the form of fine chipping supplemented by rounding and abrasion of the edge and scarce linear traces. Such use-wear resulted from hitting some soft medium dirty material (skin and flesh of hunted animals) and sliding along harder tissues and bones. Rounding, abrasion and single coarse linear traces emerged either from occasional hitting the ground when an arrow missed the target, or from contacts with other arrows. Traces from hitting the ground during the making of a quiver are also observed at points of slotted bone projectile heads. Inserts of daggers exhibit edge damage in the form of fine to crude and very crude chipping. Sometimes edge of an insert is completely crushed. Lightly developed “meat” polishing is observed at both dorsal and ventral faces in the shape of a narrow area running along the edge of the insert. Such use-wear indicates various butchering activities, first of all detachment of a body of a large mammals. During this procedure huge efforts were applied to the butchering knife, and contacts with bones, sinew and cartilage were often. Linear traces are scarce. They are in the form of stripes of oriented polishing or shallow scratches which emerge at the end of a period from the first sign to the cutting edge or the end of bone slotted daggers. They are used for both butchering knife, and contacts with bones, sinew and cartilage were often. Linear traces are scarce. They are in the form of stripes of oriented polishing or shallow scratches which emerge at the end of a period from the first sign to the cutting edge or the end of bone slotted daggers. They are used for both
TH1-30 Abstract 05

Interpreting the Archaeological Record at Hohen Viecheln, Germany

Author - Dr. Groß, Daniel, Centre for Baltic and Scandinavian Archaeology, Schleswig, Germany (Presenting author)

Co-author(s) - Mikio, Pavel, Centre for Baltic and Scandinavian Archaeology, Schleswig, Germany

Keywords: bone tools, Early Holocene, radiocarbon dating

Presentation Preference - Oral

Excavated in the 1950s, Hohen Viecheln 1, Lkr. Nordwestmecklenburg, is one of the most striking sites of the early Mesolithic in the northern European Lowlands. The abundance of finds and good organic preservation characterise the site, which is located north of Lake Schwerin in eastern Germany. Among German scholars, Hohen Viecheln is ranked alongside Bedburg-Königshoven, Freseck, Duvensee, Mulverup, 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 processes of bone technology. By this it will be possible to adequately position the site within the Mesolithic and add valuable chronological and technological information to the understanding of osseous tool development in the Early Holocene. The re-evaluation also allows the accurate dating of the numerous bone points, for which the site is known. The modern re-evaluation also renders possible to solve problems on the stratigraphic sequence. Due to the fact that the site represents a former shore area of the modern Lake Schwerin its stratigraphic sequence with different layers of peat, sand and gyttja is typical for overgrown lakes. The direct dating of 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. Gueret, Colas, Nanterre, France (Presenting author)

Keywords: Bone industry, Mesolithic of Paris Basin, use-wear analysis of lithic tools

Presentation Preference - Oral

In contrast to the Upper Palaeolithic period, it is widely admitted that bone industries have played a minor role in the economy of Mesolithic societies of Northern France. This fact is based on the scarcity of osseous tools and debitage waste discovered in the settlements and the spectacular decrease of lithic burins and borers generally associated with bone and antler working. Nevertheless, for a long time, the archaeology of Mesolithic in Paris Basin has only excavated dry-land contexts where organic materials were not preserved. Since 30 years, rescue archaeology has allowed us to discover well-preserved sites in the valleys. Evidence of bone industries are now increasingly numerous, even if the data still remain occasional. In addition, in the last few years, the development of use-wear analysis of lithic tools give us new informations about the place occupied by organic 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 hunter-gather communities. Finally, we will compare the situation of Northwestern Europe with neighboring regions, in particular to the Maglemosian techno-complex, well known for its abundant bone industry.

TH1-30 Abstract 07

The use of osseous raw material of Vlakno cave (Croatia)

Author - Radovic, Sinisa, Croatian Academy of Sciences and Arts, Zagreb, Croatia (Presenting author)

Co-author(s) - Vitezovic, Selena, Institute of Archaeology, Belgrade, Serbia

Keywords: bone working, experimental archaeology, Stone Age

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 the Mesolithic. Excavated deposits yielded tens of thousands of vertebrate remains, mostly skeleton remains of large mammals. Considering the amount of available osseous materials it is natural to expect correspondingly high amount of tools made of bone, teeth and antler. Here we integrate results of archaeological analysis and the study of osseous tools. Raw material selection, technological and typological aspects were analysed. Availability of skeletal elements is compared with raw material choices. Recovered bone and antler tools show very little typological diversity between Epigravettian and Mesolithic layers. However there are some interesting small-scale temporal trends (e.g. retouchers and harpoons being almost exclusively present in older deposits). Authors debate this pattern in tool production as the reflection of environmental and subsequently subsistence changes corresponding to availability of targeted animal taxa.

TH1-30 Abstract 08

Osseous tools in the Mesolithic and Neolithic in the Iron Gates

Author - Dr. Selena, Vitezovic, Institute of Archaeology, Belgrade, Serbia (Presenting author)

Keywords: bone technology, Iron Gates region, osseous raw materials

Presentation Preference - Oral

Osseous artefacts were very important in everyday lives of prehistoric communities, especially before the invention of metalurgy. However, they were long neglected area of study, particularly in some regions of Europe. For the Early Holocene period, the region of the Iron Gates is particularly interesting, because the presence of both Mesolithic and Early Neolithic sites enables analyses of traditions and innovations in raw material selection, technological choices, etc. Relatively rich finds were published in more detail for the sites in Romania. This paper will focus on the Mesolithic and Neolithic sites from Serbia (Kula, Veselina, Krijapile, etc.). Technological and typological data will be discussed: raw material selection, manufacturing techniques, etc. Antlers were the dominant raw material in the Mesolithic period and their importance continues into the Neolithic, especially in most of the Starčevo sites. Osseous raw materials were used in a variety of ways: Osseous artefacts were very important in everyday lives of prehistoric communities, especially before the invention of metalurgy. However, they were long neglected area of study, particularly in some regions of Europe. For the Early Holocene period, the region of the Iron Gates is particularly interesting, because the presence of both Mesolithic and Early Neolithic sites enables analyses of traditions and innovations in raw material selection, technological choices, etc. Relatively rich finds were published in more detail for the sites in Romania. This paper will focus on the Mesolithic and Neolithic sites from Serbia (Kula, Veselina, Krijapile, etc.). Technological and typological data will be discussed: raw material selection, manufacturing techniques, etc. Antlers were the dominant raw material in the Mesolithic period and their importance continues into the Neolithic, especially in most of the Starčevo sites. Osseous raw materials were used in a variety of ways:
In present session we would like to focus on different approaches to the reconstruction of cultural situation in Eastern Europe in the Roman and Migration periods (4th to 7th c. AD) based on the newest archaeological materials and investigations. The main content of these periods in Eastern European Barbaricum was spreading of Roman and Byzantine influences together with massive migrations resulting the rise of the Gothic Kingdom and its consequent fall under the Hun invasion, the emergence of the first proto-Slavic, Baltic, Finno-Cultural traditions and the formation of a new cultural landscape on this territory. To the end of the Migration period a new pattern of settlement was formed in Eastern Europe which in general exists up to date. The themes of the session includes: different forms of interaction of “barbarians” of the forest and the forest-steppe zones; communication between “barbarians” and the late antique populace; 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

Author - Dr. Khomiakova, Olga, IA RAS, Moscow, Russian Federation (Presenting author)

Keywords: Eastern European enamel style

Presentation Preference - Oral

Lecture reviewed a problem of Baltic impact in formation of eastern European enamel style in Dnepr region. It can be considered on the analysis of style 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 profiling” elements are applied in production of fibulae of type I by G. Kozurzhina and T-shaped cossbow fibulae. In A. Obolinska’s and R. Terzolskaja’s view their origin is connected with forms of Almeg group IV fibulae. The morphology of the body and tail narrow-width-form of the comb most probably are close to fibulae of group IV of B2 period from 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 narrow-width formed combs. Drinking horns were furnished with strong profiling endings.

Openwork elements in decoration of enamel T-shaped fibulae, elements of pectoral ornaments, chains of drinking horns, lunula pendants from Central Dnepr associated by similar ornamental motifs close to opus interassile stilus. 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. Artifacts supplied with openwork ornamentation and strong profiled elements find sustained conjunctions in dress both in Dnepr region and Baltic lands.

In decoration of enamal artifacts from Dnepr jewelry technique with imitation of granulation and filigree has been used. Combs of Central Dnepr region, chains of drinking horns are ornamented with punches and stamps. It could be an inspiration of Baltic artisans, who elaborated a peculiar variation of “filigree” style of 2nd century. A range of imitations of fibulae ornaments are found in 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 narrow-width formed combs. Drinking horns were furnished with strong profiling endings.

Element of additional decoration of Dnepr enamel ornaments also find analogies in Baltic lands. Motif of triangle in combination with circle characteristics “occulated” fibulae of “Prussian” series, spread in Southeast Baltic in B2 period. According to A. Anto’s, M. Shihui, U.Pfeiffer-Frohnette appearance of “occulated” fibulae in Central Dnepr is connected to this region. Decoration of Dnepr comb bracelets with obliques and triangles finds parallels with wrathband bracelets of Sudovian and Southeast Lithuanian Cultures of B2/C1-C1 period. Some notes about analogies in Southeast Baltic and S-shaped and “remolo” ornament in decoration of Dnepr lamellar neck-rings (headbands) and bracelets were made by B.Voronin.

The described jewelry technology and stylistics could be accepted as eastern European artisanship as a result of Roman provincial influences. An analysis points out that the influences were received with the fastospread of Baltic Cultures. With the support of Russian Foundation for Humanities, project No. 14-01-00289.

TH1-31 Abstract 02
About two areas of adornments with champlevé enamels hoards

Author - Dr. in hab. Obolinski, Andrei, Institute of archaeology of Russian Academy of Sciences, Moscow, Russian Federation (Presenting author)

Presentation Preference - Oral

Adornments with champlevé enamels of the East European style are dated to the end of the 2nd – 4th centuries. Its area covers all Eastern, part of Central, and Northern Europe. There are 2 areas of hoards with these adornments: Western (the Dnieper and Upper Oka river basins) and Eastern (the Upper Don area). In Western area 10 hoards are known (Mchigorye, Moshchina, Borina, Glazhew, Bryansk Region, Shklov and others). The artifacts in these complexes have certain stylistic unity. In the majority of the hoards female artifacts of different preservation level are presented. There are artifacts of men’s subculture of prestige (Bryansk, Novolokom’). The belts from Krasny Bor are unique, but they make a single ritual or ceremonial set. These artifacts were used as intended by their owners before they came to hoards. The majority of adornments in these hoards relate to the middle stage of enamel style development. Artifacts of degradation stage were found in two complexes (Moshchina and Bryansk) together with them. Thus, all the 10 hoards belong to the same chronological period. In the wide framework they are dated to the end of 2nd – 3rd centuries, in the narrow – about the middle of 3rd century. In the Dnieper area attractions with enamel adornments belonged to Late Zarubintsy and Kievan population. All hoards were found in the area of Kievan culture or near its border (Moshchina). Thus, the Dnieper hoards area is directly related to Kievan culture. In Eastern area 4 hoards were found (Zhiravka, Parkovets, Zamyatino-Yuryevo, the Lubelian’ district). Three of four complexes are hoards of scrap metal for recasting. It is unknown, which population used adornments with enamels in the Upper Don area. As well as in Western area complexes, the majority of artifacts from Don hoards relate to the middle stage of enamel style evolution. In the same complexes adornments of the degradation stage were also found. In Don hoards, as well as in Dnieper/Oka complexes, hinged bracelets, “Onya” fibulae, single late Zarubintsy and Central European artifacts are known. So Don complexes belong to the same period, as Dnieper/Oka hoards. Western area hoards are complexes of female dress accessories sets and items of men culture of prestige. The Don hoards are complexes of handicraftsmen raw materials. The two territorial groups are essentially different. The mass spread of adornments with enamels in the Don area may be explained by attacks of this region population on the Dnieper/Oka territory. The Don population was not interested in adornments, but in scrap metal. Perhaps, these attacks were also the main reason for hoards holding in Western area. The Upper Don region was attacked by the third force soon after these campaigns, therefore, the Don hoards were hidden. This force could be the groups of Chernykhov culture population. As a result of their advance to the Upper Don region in the middle of the 3rd century, Kashinka – Siedel cultural group was formed.

The report is prepared on the RGGF project No. 14-01-00289.

TH1-31 Abstract 03
“Diadems” from the East European world of enamelled ornaments

Author - Dr. Rodinokova, Vlsta, Institute of Archaeology Russian Academy of Sciences, Moscow, Russian Federation (Presenting author)

Presentation Preference - Oral

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. Today not less than 33 whole and fragmented exemplars are known. Excluding one find, they have no enamel inserts, 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 I come from the Baltic region, mainly from the territory of modern Lithuania. Most of the type 2 finds are connected with Upper Oka and the Desna region. The exceptions are a few items from the Upper Sula and the Lower Dnieper regions, which may mark the direction of cultural influences from the eastern part of the East European forest zone to southern forest-steppe and steppe territories. The majority of the type 3 ornaments are found in the Middle Dnieper region and on the Dnieper left bank. Perhaps, it is connected with the territory of modern Ukraine, where the type 3 forms have also been extended in the north, it may be indicated by specific finds in the upper reaches of Berezina and the middle reaches of Western Donia. Recently artifacts from the circle of East European enamelled ornaments, including fragmented “diadem”, have also been found in the Upper Don region, items of type 2 (together with samples of the type 2) are known as a part of the only complex of Moshchino hoard, so they don’t have local or chronological peculiarities. The chronostratigraphic of the “diadems” general corresponds to the chronological of “barbarian” enamelled ornaments. The earliest is the type 1, derived from Sandakhausen (type 1a) AD or even to the end of the II – III c AD. Adornments of the type 2 perhaps were derived from samples of the type 1 and can be related to the second half of the II – III c AD. Among the types 1 and 2 “diadems” there are no specimens that are correlated with the late period of the “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
East European enamelled objects appear in the Baltic, Upper and Middle Dnieper regions in the mid-2nd century AD. From this area they spread rapidly over a wide territory, reaching the Crimea and the Caucasus 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. Blüther-Witthöwer 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. AD. It contains 24 ornaments with enamelled decoration of red opaque or polychrome glass made in champlevé technique. Techniques used for enamelling monochromic 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. Polychromy 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 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 different matting 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 enamels were made it appears that the East European enamelled objects make part of series, custom-made for Barbarian people by late antique craftsmen. Possible production centers for them have not been discovered so far. They were likely located in zones of the most active contacts between Barbarian and late antique population. It is very tempting to assume their location at the Barbarian settlements characterizing by the presence of late antique representatives, numerous imports and developed handicraft industry, interpreted as regional industrial, commercial and administrative centers, and also trading posts beyond the limes. The funding for this project was provided by Russian Foundation of Humanities, № 14-01-00269a.
not “hiding treasures”. The “wealth” of these complexes is alleged. Unification of the composition of a set of ornaments reflects the overall homogeneity and “egalitarianism” of material culture in the third quarter of the 1st Millennium in the region in question. On the basis of these materials, it is impossible to draw a conclusion neither an “elite” nor the “Potestarian structure”. The existence of such a usage (a cultural norm), as a mass deposition of the elements of ceremonial costume in hoards, is a sign of the cultural unity of the ancient community. This community can not be correlated with “Arzats” 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?

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

The general consensus among scholars is that the early Slavs did not settle in the area of the western Pannonian Plain prior to the departure of the Lombards into Italy, possibly after 568, but probably only around 560 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. The coins for 211, 216 and 217 of Murk Sobota and its archaeological material opened up new questions. A reconsideration was needed which 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.

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-Kaszthaly-Pécs 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 aforementioned 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 and in the Pannonian Plain.

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 Duna, there being a unsolved problem of power of gepids, awar... and here, in today South and East Romania, being just a not so attractive periphery, a scarrow 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 this cultural change? Those are only a few of the questions to be analysed in our contribution.

Analyzing the discoveries known today as Ispelegi-Cplȍgi-Ciurel and Costâgognas-Haunca 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 the forest and the trees.

A commonalty of the cultures of “Barbarian” northern and Eastern Europe was the production of coins imitating the issues of the Roman Empire. Analysis of die-linked coins (i.e. struck from the same die and thus produced in the same workshop) has long demonstrated that there were wide-ranging exchange networks across much of the northern “Barbaricum” during the Roman and Migration periods. Furthermore, both official Roman coins and imitations, as well as their imitations, played an important role in the self-representation of the barbarian elites.

However, the discovery of large quantities of new material, above all from the Ukraine, has radically changed and extended this picture: we now know that the phenomenon was much more widespread and intensive than had previously been appreciated, and that such networks in fact stretched from Moldova and the Ukraine to Scandinavia. The new material allows us to produce a narrative that can be closely linked with the rise of the Gothic Kingdom and its subsequent displacement in the face of the Hunnic invasion.

The numismatic material is the subject of a 3-year joint DFG/NCN Beethoven project “IMAGMA: imagines maiestatis” by the University of Warsaw and the Römisch-Germanische Kommission that aims to understand how these imitations of Roman coins were produced and used by the developing elites right across the northern and eastern “Barbaricum” to demonstrate their status. This 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 Chemnitz/ Sîlnana dârmures Culture.

It is noted in the Przeworsk and Jastorf cultures of Poland and Germany where it sporadically occurs in the late La Tene and Roman 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 Abstract 16**

A Barbarian, meaning who?

Author - Dr. Nielsc, Kryzysztof, University of Warsaw, Chojnice, Poland (Presenting author)

Keywords: Identification, Relationship and influence, Romans and Barbarians

Presentation Preference - Oral

In late antiquity, due to a change in social relations inside the barbarian societies, perception of Barbarians themselves changed as well. As a result of the intensification of contacts which less and less frequently took a form of a one-sided dialect, the late-antique community was today of the existence of various relationships among European populations which led to the formation of new identities 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 boosted particular barbarian populations, which made them create permanent state organizations.

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 Abstract 17**

Burials with weaponry of the upper Dnieper version of the Zarubintsy culture

Author - Vorchinskaya, Larissa, The State Hermitage Museum, St. Petersburg, Russian Federation (Presenting author)

Keywords: upper Dnieper, weaponry, Zarubintsy culture

One of the specifics of the upper Dnieper version of the Zarubintsy culture making it different from the Polesye and middle Dnieper versions is a custom of placing weaponry in a grave. On the burial ground Chaplin 14 spear and dart heads (5%) were found in 282 burials, on Yurkivich 1 in 19 out of 19 (5.3%). On the burial ground Goroshkov spearheads have been found in six investigated burials out of 32. All the heads are of iron, socketed, with a leaf-like feather, and bear traces of having been in fire. On the outside of the socket of one of the heads of the Goroshkov burial ground (burial No.9) there are prints of fabric preserved. In Goroshkov the heads lay in different parts of the burial pit parallel to it. In most cases, the burials with weapons, apart from模式d bowls, contained horseshoe-like iron tubules of syngagma type and (or) iron knives with hunched bases. What is more, the knives always lay with the pointed direction to the side opposite to that of the spearhead.

A unique element for the funeral rites of the Zarubintsy culture is an iron spearhead stuck almost vertically into the bottom of the burial pit with the socket facing upward (burial No.13 of the Goroshkov burial ground). The custom of driving weapons or armor implements through the remains of the burial person placed in an urn or a pit is widely distributed territorially and chronologically. It is noted in the Przeworsk and Jastorf cultures of Poland and Germany where it sporadically occurs in the late La Tene and Roman times. Similar cases are known also in the late Celtic burials of the Danube zone. The vertical piercing (driving) of a spearhead into a burial pit appeared apparently some ritual or magical significance.

This custom is interpreted variously. On the one hand, there is a rich mythology existing about spears that pierce the vault of heaven and therewith give human access to the sky. On the other hand, the weapons were driven into the remains of the buried man...
in order to bind the deceased to the ground and prevent him from leaving the grave. Finally, this custom is viewed upon as a reflection of phallic cult symbolizing the ex-fertilization of Mother Earth.

Also for the first time for the Zarubintsy culture an iron scabbard of a sica, a battle knife (burial No.28.) and the spiked head of a Scythian arrow (burial No.30) were found in Goroshkov.

In the vicinity of Ulów (Middle Roztocze, SE Poland) the complex of multicultural archaeological sites was found. Among them two bi-ritual cemeteries (site 3 and 7) originating from the late Roman Period and the early Migration Period were discovered. On the map of archaeological cultures, Ulów is located in the settlement zone F of the Wiebark 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. Marzamplit Group, Chernyakhov Culture). It is known that the Wiebark 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 Wielkice). According to many archaeologists, wheel-made potteries from the Wiebark Culture sites are in most cases imported from the Chernyakhov or Sántana de Mureş 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 Ctb-C2 and connecting the ornamentation of hand-made Wiebark Culture pottery with the technology and morphology of wheel-made pottery characteristic for the Chernyakhov or Sántana de Mureş Cultures.

The interdisciplinary studies carried out in Nieszawa Kolonia systematically fulfil the still up-to-date postulates of the Przeworsk Culture in the Lublin Region with relics of this culture dominate over the cemeteries discovered in Nieszawa Kolonia. This site is the largest archaeologically explored settlement of the Przeworsk Culture in the Lublin Region with relics of this culture dominate over the cemeteries discovered in Nieszawa Kolonia. This site is the largest archaeologically explored settlement of this Przeworsk Culture cemeteries, Ulów, SE Poland, wheel-made pottery

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

Author - Radysch, Oleg, Institute archeology of RAS, Moscow, Russian Federation (Presenting author)
Keywords: Champlève enamels, Geoinformation methods
Presentation Preference - Poster
In the last decade the objects made with champlève enamels have attracted the attention of many researchers once again. Increased volume of incoming information from different regions of East Europe have expanded significantly the current understanding of the spread of this category of things, its connection with different cultures and its history.

The source corpus by G.F. Korzukhina (1978) reflected the situation of the early 1970s. About 450 objects divided into 10 categories (Brooches, Bracelets, lunula-pendants, Chains, Plate items, Neck-rings, Charms, Ligings, 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 exploration 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 differerent: 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. Terziylovsky and A.M. Obolomsky (2007). It included 142 findings mostly from the Middle Dnieper region.

Thus, even on the example of existing source corpuses it is obvious that a significant part of the findings is not related to the archaeological excavations. At present the accumulation of sources is irregular. So in the Baltic region new finds are rare and are related to archaeological researches, while in the territory of Ukraine, Russia and Belarus number of known finds has increased significantly. Vast majority of items was found due to the massive looting of archaeological sites. This process has been going more intensively since the late 1990s–early 2000s. Nevertheless over the past 10 years hundreds of things in museum‘ collections have been added to this corpus. In the Middle Dnieper region 173 of 184 findings came from “casual” ones found on the surface exploration 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.

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At present day we have information on more than 2,000 items. Such study full database (source corpuses by Korzukhina et al.) continues. New approaches in work with undocumented finds allow including them in statistical survey. The first results of such work allow eliminating the G.F. Korzukhina’s hypothesis about three areas of distribution of objects with enamels. The newest mapping fills existing gaps in the Upper Dnieper region, on the left bank of the Dnieper, in the Neman region. The amount of finds in the Middle Don region has increased significantly. Many things from the right bank of the Dnieper and Western Ukraine became known. New categories of things unknown among a set of categories in Korzukhina’s book were allocated. Number of items in previously small categories of things significantly increased. Information from full database allows beginning the work on allocation regional and interregional series of things, based on statistically valid samples of items.

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

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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 ring-shaped ends, are a conservative stuff category. In the South Eastern Baltic Area, these are known from stray finds (Taurage) and from burial complexes (Mažonys, Verblia). In the Dnieper–Oka region, such neck-rings originate from hoards (Moschyno, Milhigo’ye, Glažiavo, Usdži). Amongst the neck-rings of the Mažonys burial (ground), there is a specimen cut in two — what could serve as a piece of evidence of ‘killing’ the stuff. In three hoards from the Dnieper–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)

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Keywords: the Wiebark Culture cemeteries, Ulów, SE Poland, wheel-made pottery
Presentation Preference - Poster

In the vicinity of Ulów (Middle Roztocze, SE Poland) the complex of multicultural archaeological sites was found. Among them two bi-ritual cemeteries (site 3 and 7) originating from the late Roman Period and the early Migration Period were discovered. On the map of archaeological cultures, Ulów is located in the settlement zone F of the Wiebark 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. Marzamplit Group, Chernyakhov Culture). It is known that the Wiebark 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 Wielkice). According to many archaeologists, wheel-made potteries from the Wiebark Culture sites are in most cases imported from the Chernyakhov or Sántana de Mureş 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 Ctb-C2 and connecting the ornamentation of hand-made Wiebark Culture pottery with the technology and morphology of wheel-made pottery characteristic for the Chernyakhov or Sántana de Mureş Cultures.

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

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

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

This site is the largest archaeologically explored settlement of the Przeworsk Culture in the Lublin Region with relics of dwelling constructions. The dating of the majority of artefacts and features uncovered in Nieszawa Kolonia can be placed within the phases B2 and B2/C1-C1a of the Roman Period. One can however also mention a whole set of metal and ceramic artefacts pointing the functioning of this Vistula river bank settlement in the late Roman Period and early Migration Period, that is, at the time of phase C3 (or still the final stages of phase C2) and phase D1, which puts the problem of the decline of settlement of the Przeworsk Culture in the Lublin Region in a new light.

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

The interdisciplinary studies carried out in Nieszawa Kolonia systematically fulfilled the still up-to-date postulates of the internationalization of studies over settlements of the Przeworsk Culture.
THI-31 Abstract 22
The preparatory stage of pottery technology among the Russian forest-steppe cultures in IV-VII AD

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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 "cough-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 compass of finds, social and economic characteristics of different cultural groups are different.

Consideration area includes series of archaeological cultures: Prague-Korchak, Penkovo, Chernyakhov (in part), later Kiev and Kolotoch, Mochnino, culture of Volga rims, Imenkovo. Studying of Eastern-Europe forest-steppe sedentary cultures ceramics as a single phenomenon has not been conducted, but there are a some works in separately. The main part of the special researches about ceramics are works devoted to the vessels shapes typology, based on the method of ceramics processing, which had introduced into scientific circulation by IP Rusanova and VF Gaining in 1973. These typologies had arisen from the mid-1980s and still are working. These include typology of AM Oblomsky, OS Rumyanseva, AM Vorontsov, VV Grishakov. Besides them there are typologies based on the features, defined as type-forming by the researchers themselves (for ex. the functional features of vessels, features of profiling and others) - typologies of BV Magomedov, O. Petruskas GI Matveeva, GA Massalitina. Thus researchers attention focused mainly on the vessels shapes. At the same time, about the pottery technology facts is bit. The first step in this direction has been made by AA Bobinsky. He studied in detail the pottery of the Chernyakhov culture, in particular the selecting and procuring the raw materials, blending the pottery pastes, features of build, the study of pottery circles, the organization of the pottery industry. In addition, technological-analytical analysis conducted by NP Salugina of the Imenkovo culture pottery covered all stages of pottery production and gave a full presentation about the traditions of this population. In recent years, some ceramic sets of Chernyakhov culture began to be exposed to petrographic and X-Ray studies.

We believe the analysis of pottery technologies is the topical question of study of sedentary cultures of the Eastern-Europe forest-steppe, and this stage of our research work is devoted to the characteristics of the raw materials and pottery pastes. Our observations were made on fresh fracture sherds using stereoscopic microscope MS-1. Definition components of raw and paste composition was carried out by collation with a models collection, developed on the basis of Samara expedition to the organization of the pottery industry. In addition, technical-and-technological analysis conducted by NP Salugina of the Imenkovo culture pottery covered all stages of pottery production and gave a full presentation about the traditions of this population. In recent years, some ceramic sets of Chernyakhov culture began to be exposed to petrographic and X-Ray studies. We suppose the detected affinity of pottery traditions is reflecting the close connection within the studied population.

THI-31 Abstract 23
Glass beads of Imenkovo culture (on the materials from the Tetushskoe II settlement, Middle Volga)

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Keywords: glass, beads, Imenkovo culture, Middle Volga region, imports, the Middle East
Presentation Preference - Poster

Tetushskoe II settlement is situated on the northeastern outskirts of the modern town of Tetushi (Tetushi district, Republic of Tatarstan). Our investigations suggest that the glass beads which were found on the settlement are the imports from one region, the Middle East. The analogues to these beads within large geographical limits show their extremely long chronology. Nevertheless, we can say that on the sites of Upper Kama region, which is the closest territory to the Tetushskoe II settlement, such beads only appear from the 6th century A.D.

THI-31 Abstract 24
'Burakovo horsemen': burial, hoard or imaginary assemblage? (concerning the status of the complex)

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Keywords: early medieval archaeology, hoard, Middle Volga region
Presentation Preference - Oral

Every archaeological culture contains a site that becomes 'an archaeological talk of the town' in a positive or negative way. Komintern 2 burial ground became such type of site for the Middle Volga region sites of the 1st millennium AD. The site was heavily damaged by abrasion and excavations (1984-2003) were irregular and limited. Reports on Komintern 2 excavations were partly published (Kazakov, 1998; 2005), the historiographical tradition, mainly controversial has managed to developed in such difficult circumstances. Situation becomes more complicated due to existence of another complex, ‘Komintern hoard’ (also known as ‘Komintern burial mound’). Reports on Komintern 2 burial mound. The ‘hoard’ has controversial historiography developed around it too. This work aims to find origins and define status of the ‘hoard’ and its relations to the burial ground. According to the first publication (Izmaylov, 1990) the ‘hoard’ originated from the burial ground (nearby Burakovo) that was destroyed by water reservoir. Later publication (Mukhamedshinha, 1998) as well as documents of Bolgar Museum Reserve argues that the artefacts were found by the resident of Burakovo, P. Levagin, in 1983 in Beganchik island (located in the place of eroded burial ground), 1 km far from Komintern. The final localization was inaccurate, as there is 5 kilometre distance between Burakovo and bank of the reservoir. The second is also inaccurate (as the island located to the west from Komintern and no burial mounds were found there earlier), however it may be more trustworthy. Attribution of all the artefacts to one complex is a random interpretation of P. Levagin, who had not give details neither about the place nor about the composition of the hoard. The composition of the ‘hoard’ is chronologically and stylistically heterogeneous. The majority of the artefacts are dated from the end of the 6th - 7th centuries. A silver fibula dated the 5th century, a two-edged sword probably from Asazino 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 6th 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 filling, charactarous for 3rd horizon of Volga region heraldic style, (3) two cast silver strap ends of Artsybashevo 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 Akhtai stretched from ‘Devyshch Gorytok’ to Beganchik island. The island is considered to be the most likely place of finding of the main part of the hoard and is related to the several destroyed burials of Komintern 2 burial ground.
TH1-32 Abstract 01
Basque Iron metallurgy, habitat and social complexity during the Middle Ages (7th-14th A.D.)
Author - Dr. Jose Luis, Solan, University of the Basque Country (UPV/EHU), Vitoria-Gasteiz, Spain (Presenting author)
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Presentation Preference - Oral

The historiography of the Basque Country has traditionally related the Early and High Medieval iron and steel production with the ironworking families, located generally 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 hiaizaelak, which in the Basque language are wind ironworks, as opposed to the zeharrolak or hydraulic ironworks. Just as iron production has been transformed since then, and nowadays, the conclusion is that ‘expensive’ is a very relative term depending not only on production and consumption parameters but also that geographical location, role within the society or political context had a considerable influence to access the iron 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 nowadays. 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 nowadays. The conclusion is that ‘expensive’ is a very relative term depending not only on production and consumption parameters but also that geographical location, role within the society or political context had a considerable influence to access the iron 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 nowadays. 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 nowadays. 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This paper is an attempt to describe the development in the Baltic during the period 900 to 1350 AD in a holistic perspective, pointing out iron production as a force for changes in different societies around the sea.

During the Viking Age the societies around the Baltic underwent a remarkable development within agriculture, several towns were founded along the shores and in the river valleys and there was a change from pagan religions to different versions of Christianity. Supposedly there was an increase in a large scale trade with intensified contacts between the caliphate, Byzantium and the Carolingian empire, where the Baltic became a transit area. Iron might have been an important factor in the economy of the area, as the production increased significantly and was undertaken all around the Baltic. In the end of the period the island of Gotland became a center of smelting. Substantial iron production was initiated in the island of Saaremaa in Estonia and in the latter part of the 14th century the southern part of the Swedish west coast in the county of Småland. Here there was what has to be described as a mining area of lake and bog ore with over 1000 known bloomery sites with a minimum of 144,000 tons of produced iron. A production on such a scale during a period of 200 to 300 years evidently had a great impact on the whole Scandinavian and Baltic society, despite the fact a new more efficient technique, the blast furnace, was to be developed in the mining area of Bergslagen further north in Sweden around AD 1000.

The bloomery processes of iron production survived the whole period and a regional specialization and social differentiation developed. As a result peasants on the plains founded their economy on grain production and peasants of the transitory regions between plain and woodland produced a surplus of animal products, while woodland peasants often sold handicraft articles, but iron opened up a new need for labor and produce, where the forests, lakes and bogs contributed with raw materials. Under these conditions iron production was introduced and raised within the peasant society linked to the emerging states, for example through towns like Kalmar, Gotland, 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 thereby threatening the trade of iron and making objects be reached by analyzing these objects? Also the life course and use of iron objects found in different provincial and rural sites are considered, as it can give us access to the production as well. The castle of Raseborg had of course a very special role as the center of Western Nyland from the end of the 14th century to the middle of the 16th century. The question is, can the iron production, the castles of the iron and making objects be reached by analyzing these objects? Also the life course and use of iron objects found in the same province. Were there perhaps some correlations between the organization of the iron production and distribution of the castle and villages? Just by researching archaeological finds these questions are hard to answer, but by combining the research of historical sources to the research of the material culture, the results might be fruitful.

The development of the Swedish iron industry during the 1620s to 1640s is closely related to the Thirty Years’ War (1618-1648) which ranged across the continent. Although this is a thoroughly researched episode in European history there are lacunas in the knowledge. For example, there has not been much of archaeological research of the Swedish war industry and especially the iron industry of the period. The rise of the iron industries during the war was particularly significant in the Middle Swedish province of Södermanland. However, immediately after the Peace of Westphalen many of the industrial plants were closed. In some of them, such Öllösa bruk and the cannon foundries of Grötytan and Bröm-Eksby, there are well preserved archaeological remains left.

The focus is on the entire life span of the iron produced for the army and the navy: from the furnace and forge to the arsenals and battle fields. On the other hand we shall not forget the rest of the iron production which was made for export – and its huge impact on the county's economy. It was during the Thirty Years’ War when Swedish bar iron production was modernized and it made its successful entrance to the international iron markets.
TH1-33 Abstract 01
The Avelino Event: investigating the migration resulting from the Bronze Age eruption of Vesuvius

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Keywords: Bronze Age Italy, disaster impacts, migration

Presentation Preference - Oral

Around 1950 BC, during the Early Bronze Age, a giant eruption of Mount Vesuvius buried a flourishing landscape of villages and fields in the plains of Campania under more than a meter of ash. Inhabitants of sites such as Nola ("the Bronze Age Pompeii") could not escape with their lives. Italian archaeological research since the 1980s has conclusively shown that the population of the Campanian plain did not fully recover from several eruptions after this so-called "Avelino Event." Oddly, no one has yet wondered what might have happened to the fleeing population of Campania. The authors present preliminary results of a new 5-year research program that pursues the hypothesis that they found refuge in the coastal wetlands of southern Lazio, the region immediately to the north of Campania. Long-standing Dutch geochronological research in this region has already shown the presence of a continuous sedimentary record for the period of interest, and the team recently identified, besides the Avellino volcanic ash, two more ash layers that will function as chronometric markers for any volcanic events. Using a combination of archaeological, anatomical, and palaeo-ecological approaches, the Groningen/Leiden team is using these indicators to document the significant demographic, environmental and cultural impacts that are likely to result from the presence of the postulated Early Bronze Age refugee population in South Lazio. By September 2016, the project will have ended its first year and will be able to report on the results of its extensive coring campaigns and laboratory analyses of the environmental samples taken.
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Co-author(s) - Milner, N., United Kingdom
Keywords: Craft Theory, Mesolithic, Organic technology
Presentation Preference - Oral

Since its original excavation in the 1940s and 50s, the Early Mesolithic site of Star Carr has dominated discussions of 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 headshafts, elk antler mattresses, bone bodkins and aurochs bone scraping tools were made, used and deposited at c.9800 cal. BC in North Eastern Britain.

Abstract 05

Bone functional adaptation in the femur: a quantitative analysis in historical populations

Author - Dr. Simonit, Francesco, Montalcino, Italy (Presenting author)
Keywords: computed tomography, migration period, moments of inertia
Presentation Preference - Oral

Bone is responsive to mechanical stimulation. Working aspects and social conditions are able to bring 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 cylindricals 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 cylindrical. Furthermore, the analysis of the parameters of two cylindricals 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 load of the lower limbs. In particular, moments of inertia have been turned out highly sensitive. This working and cost-effective technique might represent a useful non-destructive and operator-independent method in bioarchaeology and could be useful to evaluate and compare the MOS of historical populations.

Abstract 06

The investigation of Early Slavic sites in North-Eastern Germany in the last 25 years. A review

Author - Dr. Schneeveis, 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 contemporary directions in archaeology are often focusing on 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 load of the lower limbs. In particular, moments of inertia have been turned out highly sensitive. This working and cost-effective technique might represent a useful non-destructive and operator-independent method in bioarchaeology and could be useful to evaluate and compare the MOS of historical populations.

Abstract 02

Taxonomy, Archaeology, and Ethnology:
Myths and Realities for Prehistoric and Modern Settlements

Author - Prof. Zubrow, Ezra, University at Buffalo and Toronto, Buffalo, United States of America (Presenting author)
Co-author(s) - Dachemo, Aleksand, Institute of Archaeology of the NAS of Ukraine, Kiev, Ukraine
Keywords: Demography, settlement, archaeology, Ethnography, ethnology, international, Taxonomy, classification, ontology
Presentation Preference - Oral

This study examines ethnoarchaeological and archaeological settlements on a worldwide basis, and presents the results of testing various models against the available archaeological and ethnographic data. Generalized settlement taxonomies from several
The aim of this paper is to investigate the surroundings of the Eneolithic tell settlements in the Balkans (Romania and Bulgaria), from the fifth millennium BC. The traditional biases are that the prehistoric habitation was limited to the tell area and that the

TH1-34 Abstract 05
Activity Zones and Community Formation: The Role of Spatial Structure in Early Nucleated Villages

Author - Dr. Salisbury, Roderick B., University of Vienna, Vienna, Austria (Presenting author)
Keywords: Neolithic Europe, social organization, spatial analysis
Presentation Preference - Oral

Spatial relationships are among the most important sources of archaeological evidence, and one of the most important aspects of social organization. Spatial structure, including the locations of task areas and activity zones, is an essential aspect in understanding domestic space. Cross-field interactions, power structures, inclusion/exclusion, and a host of other social relationships. The case study focuses on matters of community organization and the creation of space at Polgár-Csoszlalom. 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 Csatlakos settlement complex. These studies were able to reconstruct two different reference systems of space/time that diverged regarding their basic characteristics. In the interpretation, the tell and the enclosure system represented a higher level of transformative architectural features: this unit was not simply a residential area, but an arena for events with a unique topography, 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 Csatlakos settlement complex may have been much more sophisticated than previously thought. The presentation will provide a detailed contextual assessment of the currently available 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 various physical loci of human activities and events. Finally, the spatial and functional associations of these loci and their social implications will be discussed. The project was funded by the Hungarian National Research Fund (OTKA Grant 101024).

TH1-34 Abstract 07
What’s outside an Eneolithic tell settlement?
Case studies from the Balkans

Author - Craciunescu, Ionela, National History Museum of Romania, Bucharest, Romania (Presenting author)
Co-author(s) - Lazar, Catalin, National History Museum of Romania, Bucharest, Romania
Keywords: Eneolithic, spatial analysis, tell settlement
Presentation Preference - Oral

The aim of this paper is to investigate the surroundings of the Eneolithic tell settlements in the Balkans (Romania and Bulgaria), from the fifth 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-discovery research made in Bulgaria (e.g. Podsypka) and Romania (e.g. Pietrela, Sutinà) 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. Two of them were meant purely for defense. The third hill-fort had dual function, because it was populated by urban artisans and merchants, but it also held a defensive function. The function of the fifth hill-fort, which is situated furthermost to the east, is not clear yet. The valley, which is situated between the hill-forts and the river, as well as the upper river terrace, was an important administrative 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 socio-economic and ideological stratification and 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 Slavic jewelry traditions. It may be that two different Hanseatic trading sites (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 08

Experience, organisation and identity within the nucleated broch villages of Northern Scotland

Author - Gaí, Emily, University of St Andrews, St Andrews, United Kingdom (Presenting author)
Keywords: Brochs, Iron Age, Scotland
Presentation Preference - Oral

This paper will explore the Iron Age nucleated ‘broch-villages’ of northern Scotland and their significance within the wider settled landscape. Brochs are a well-recognised drystone domestic structure in later prehistoric northern Scotland, with distributions extending across mainland Scotland and the Northern and Western Isles. Interestingly, the brochs of Orkney, Caithness and Shetland are often directly associated with nucleated ‘villages’ consisting of a number of smaller structures, within an enclosing boundary. These structures took a variety of forms, in a radial or non-radial arrangement around the broch, with entrances often facing inwards. Archaeological evidence suggests that they were primarily domestic in nature, although some sites have revealed evidence for the housing of livestock, metalworking, and other craft activities. Most were equipped with standardised furnishings including hearths and stone-lined tanks.

The spatial organisation and purpose of these villages with the monumental broch as their focal point is investigated with reference to archaeological evidence and theoretical approaches, resulting in a deeper understanding of social organisation and organisation in the Iron Age settlement. Beginning with a comparison of contemporary regional settlement types, prescribed movement around the nucleated settlements will then be explored (e.g. Foster 1989b), as well as social relations and interaction in these architecturally-crowded settlements. Through the consideration of a number of relevant case studies it is suggested that over time a social situation built on restriction, control, dependence and isolation may have developed. Additionally, it could be 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

Author - Dr. Vengalis, Rokas, Lithuanian History Institute, Vilnus, Lithuania (Presenting author)
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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 christened only in 1387) and the first political administrative centers, which eventually developed into towns, were created. One of the earliest towns in Lithuania was Kernave, the residence of the grand dukes of the 13th century, which is considered to be one of the most important economic and political centers. Therefore, in the context of European medieval history, Kernave is unique, because the town was shaped by the pagan community. Archaeological and interdisciplinary research allows the reconstruction of the socio-economic model of medieval Kernave. The most important archaeological objects of that period in Kernave are 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 activities of different social groups. The central hill-fort was the residence of a duke. It was surrounded by three hill-forts, one of which had a defensive function. Two of them were meant purely for defense. The third hill-fort had dual function, because it was populated by urban artisans and merchants, but it also held a defensive function. The function of the fifth hill-fort, which is situated furthermost to

TH1-34 Abstract 10

Uncovering Medieval Urban Planning: the case of Oslo and Magnus Lagabøt

Author - Oldham, Mark, Norwegian Institute for Cultural Heritage Research, Oslo, Norway (Presenting author)
Keywords: Medieval, Oslo, Planning
Presentation Preference - Oral

Oslo is currently undergoing an urban transformation, with new city districts and transport infrastructure being constructed. One such project, the new Follo Line railway, has provided archaeologists at the Norwegian Institute for Cultural Heritage Research the opportunity to excavate a large part of the medieval city. This paper will take inspiration from the current new wave of city planning to examine Norway’s first planning law, Magnus Lagabøts bylov, in the light of the ongoing archaeological excavations. Issued in 1276, Magnus Lagabøts bylov regulated both the use of space and behavioural practices, aiming to exercise control over both citizenship and populace. Here, an examination of the extent to which the various articles in this piece of legislation can be identified in the archaeological record. Can ‘good citizens’ be recognised, or is there evidence for a gap between de jure and de facto practices? This paper will hence also critically examine the relationship between the written record and the archaeological record, as well as consider how top-down planning instructions are negotiated, amended and, perhaps, subverted locally.

TH1-34 Abstract 11

Emergent Complexity and Neolithic Settlement Nucleation on the Great Hungarian Plain

Author - Gyöka, Attila, University at Buffalo, Buffalo, United States of America (Presenting author)
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Keywords: Great Hungarian Plain, Neolithic nucleation
Presentation Preference - Oral

The development of new social, economic, and political configurations frequently result in fundamental changes in settlement networks and settlement organization. In stark contrast to the previous period, the Late Neolithic archaeological record of the eastern Carpathian Basin indicates a settlement distribution of spatially discrete polities with multi-tiered settlement hierarchies surrounding therefrom unprecedented, sizeable centers in the region. In this paper, we focus on tells and large Late Neolithic settlements on the Great Hungarian Plain and in the adjacent regions in order to demonstrate how the spatial analysis of built landscapes at various scales can aid our understanding of prehistoric socio-political organization. The remarkable increase in social and economic complexity during the later Neolithic brought about novel social mechanisms and institutions to assure community integrity in these large demographic, economic, and political centers. We argue that considerable differences in their layout reflect a high degree of variability and resilience within similar egalitarian societies. The paper also 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.
Nucleated settlements in the Eneolithic of south-eastern Poland?

Author - Dr. Nowak, Marek, Institute of Archaeology, Jagiellonian University, Kraków, Poland (Presenting author)
Co-author(s) - Kowalczyk, Piotr, Institute of Botany Polish Academy of Sciences, Kraków, Poland
Keywords: Bronze age, fortified settlements, Hungary

Presentation Preference - Oral

At the beginning of the fourth millennium BC in south-eastern Poland (historical province of Lesser Poland – Polonia Minor) appears a new archaeological unit called Funnel Beaker culture (TRB), in the place where earlier units of the so-called Danubian Neolithic originally settled. From ca. 3600 BC, the growth of the area occupied by some settlements of this culture can be seen; this process seems to intensify with time. It is possible that such big settlements gained the status of micro-regional centers, around which the whole settlement network was organized. There are opinions that a two- or even three-tier hierarchical system of the TRB settlement was formed in that time. At the end of the fourth and in the first half of the third millennium BC, the biggest sites of the TRB reached a size of approx. 20 hectares. Because of this fact and due to the disappearance of most of the smaller sites, one can assume that a greater part of the local populations concentrated in these big settlements. Interestingly enough, such large sites are often characterized by archaeological materials of a mixed character. The so-called Beaker-Baden Assemblages in western Lesser Poland are the classic example of such correlation; i.e. they are known from phases IV and V of the site at Broncice, the Przecław district (ca. 3100-2700 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. 2900-2600 BC), the widespread coexistence of elements of the Baden culture, the Globular Amphora culture and the Corded Ware culture were recorded. It is significant that this site is actually the only settlement of the local archaeological unit called Złota culture. Other sites of this culture are cmertenia and numerous graves. Therefore, it can be assumed that this result was concentrated from the population of one central point of the settlement area, this time of the mezio-region scale. The presentation has the objective of clarifying what kind of economic processes and social structures conditioned the emergence of big, Eneolithic settlements in south-eastern Poland. Some interpretative problems associated with such settlements will also be examined, e.g. questions of "invisibility" of houses within them and their relationship to the monumental, sepulchral structures of the TRB. For this purpose, a series of comparative typological analyses were performed including: (1) the internal arrangement of architectural structures within big settlements, (2) the internal dynamics of their development, (3) the location of sites in terms of environmental conditions, (4) their potential activity zones, (5) the degree of human interference in the environment around them, and (6) the relationship between them and other sites in their vicinity. The results of these analyses have been recently published (i.e. at the TRB site in Magdala (Pol. Złota, Silesia)). They are based on the results of surface surveys, geomagnetic prospections, excavations as well as palaeoenvironmental studies.

Spatial patterns of Nuragic sanctuaries inside settlements and in the countryside of Sardinia

Author - Dr. Beusing, Ruth, Römisch-Germanische Kommission, Frankfurt, Germany (Presenting author)
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 organisation of the communities behind the joint efforts in creating those enormous and sophisticated built spaces are still debated and barely understood. The Nuragic civilization developed in the Middle Bronze Age and Early Iron Age, from about 1900 – 730 BC (IBMA to EIA). Nuragic settlements were spread over the entire island (more than 6000 are still visible in the landscape), and the Nuraghes can be subdivided into mono-tower and multi-tower. In later times (Final Bronze Age, MBA) the use of Nuraghes declined, while complex villages arose – most times nucleated villages distributed around Nuraghes, but also in new places in the landscape.

In contrast, sacral monuments or areas are less frequently identified. While for the earliest phase of the Nuragic civilization no more sacral places can be identified, they gradually become visible in the weirade of giant tombs and in megaron temples. From the beginning of the LBA a preference for fonts and wells can be observed, surfacing in water sanctuaries of finesst MBA 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 Cristina- 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 mastery can be observed. Though the actual building of the Nuraghes ceases, they survive partly in conversion also as sculptured motifs of stone that was treasured in many of the sacral and/or meeting places. The refined religious practices observed somehow display changes in collective understanding of their surroundings manifest in the exploration of fonts and wells. The processes are not fully understood, and were probably influenced by intensified contacts with different cultures of the Eastern and Western Mediterranean.

The study researches the interaction of the sanctuaries with different natural and cultural aspects within a GIS. The reference to water, other resources and infrastructural aspects are investigated, as well as the clusters of settlements they relate to, but also to other cultural patterns such as voute deposits (differentiating local and imported materials). In case studies it also takes into account the patterns of sanctuaries located close to or within settlements, and the ways in which they were incorporated into new settlement foundations or added to existing settlements.

Attempts to interpret the Nuragic civilization and their features are numerous and manifold. Scholars claim models from elite structures to egalitarian systems. The study finally discusses the results in regard to different theories currently debated.

Organizationally, the Nuraghe is often associated with the culture of Nuragic Greece of the late Iron Age period. The broader review of the whole settlement network might shed light on the temporal and spatial changes of the main causes in the background, and in some cases can give a valuable interpretation for the landscapes of complexity.
Interpreting the Archaeological Record

TH1-34 Abstract 16
Settlement mounds: A long-term analysis of the settlement organization in the Iron Age
Author - PhD Haue, Niels, Historical Museum of Northern Jutland, Aalborg, Denmark (Presenting author)
Keywords: Iron Age, settlement mounds, socio-economically organization
Presentation Preference - Oral

The settlement mounds in Denmark date to the Pre-Roman Iron Age and the Roman Period, and the excavation of these complex sites offer detailed analysis of the long-term social organization of rural villages in South Scandinavia. The paper will present a case study from northern Jutland, Denmark to discuss how spatial divisions within nucleated settlement mounds could regulate the socio-economic patterns and dynamics of prehistoric villages. In particular, the paper focuses on the ways that the best “addresses” of the village could maintain their dominance for several centuries, and how architecture was used to express and manipulate identity within the village.

TH1-34 Abstract 17
Structured villages from the Early Roman Iron Age in central-southern Jutland, Denmark
Author - Dollar, Scott, Sønderkov Museum, Brøgup, Denmark (Presenting author)
Keywords: Early Roman Iron Age, farmsteads, nucleated settlements
Presentation Preference - Oral

During the Danish Late Pre-Roman Iron Age in parts of western and southern Jutland there was a shift from a dispersed to a more nucleated settlement structure. This is best illustrated by a handful of villages that were enclosed by common fences. At the start of the Early Roman Iron Age there is a dramatic increase in the number of nucleated settlements, some of which seem to emerge rather suddenly, often where there has been little or no previous occupation. Rescue excavations have brought to light a number of structured villages from the beginning for the Roman Iron Age that were composed of several individual enclosed contemporaneous farmsteads laid out in a linear plan. The layout of individual farmsteads and the buildings within them were themselves architecturally uniform giving these villages, as a whole, a relative homogenous character. When comparing different settlements to each other, there are variations in settlement and farmstead layout that can be seen as similarities or there were 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.

TH1-34 Abstract 18
What does settlement layout tell about the community?
Author - PhD Yalman, Emine Nurcan, Cultural Awareness Foundation Istanbul, CIE Center for International Heritage Ac, Istanbul, Turkey (Presenting author)
Keywords: ethnoarchaeology, interpretation, settlement
Presentation Preference - Oral

The layout of a settlement reflects long-term processes and mutual interactions that occur among many variables. Sometimes the factors that shape a settlement are the result of various deliberate decisions, but indirect effects also play a role in these processes. In an archaeological site, we usually excavate and observe only parts of settlements, and thus we find that many of the components are missing. Therefore, especially in prehistoric sites where there is no predictable site plan, it is difficult to interpret the community by studying the site. This paper will discuss the relationship between the structure of a community and the settlement layout and the factors that make a settlement nucleated, dispersed or agglomerated, with an ethnoarchaeological study in Central Anatolia.

TH1-34 Abstract 19
The creation of powerful places in Etruria
Author - Dr. Stoddard, Simon, University of Cambridge, Cambridge, United Kingdom (Presenting author)
Keywords: Etruria, Genealogy, Heirarchy
Presentation Preference - Oral

The paper will examine the processes underlying the construction of powerful places in Etruria. On the one hand, the landscape of much of Etruria was dominated by what have been defined as primate centres in studies of political geography. On the other hand, burial evidence indicates the retention of counterweighing political genealogies that apparently contrasted with the apparent centralisation of power in the large centres. The paper will examine the resolution of this tension by matching emerging evidence from the nucleation of settlement (layout and organisation) with evidence for succession amongst political elites and their individual participants (the sequence and content of graves). The variation of this pattern at an interregional level will be added to the complex, often hierarchical, pattern of Etruria.

TH1-34 Abstract 20
Communication network structure in Latium vetus and Etruria: Two faces of the same coin?
Author - Dr. Fulminante, Francesca, University Roma Tre, Roma, Italy (Presenting author)
Co-author(s) - Prof. Guidi, Alessandro, University Roma Tre, Roma, Italy
Co-author(s) - Dr. Lozano, Sergio, IPhES, Taragona, Spain
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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 terrestrial communication networks in Etruria and Latium vetus between the Final Bronze Age and the Archai Era with a newly developed Network approach this paper shows the similarities and differences between the two regions and contributes to explain why in the Ulpia Rome and Latium vetus prevailed over the rival. Moreover, this analysis suggests a relationship between the hierarchical dynamics of city-states organization (and its corresponding influence on infrastructural decision-making) and the structure of terrestrial routes networks.

TH1-34 Abstract 21
The Analysis of Changes in Post-Chalcolithic Settlement at Gathàlıhâyûk
Author - MA Hordinski, Jędrzej, Adam Mickiewicz University, Kielcian, Poland (Presenting author)
Keywords: gathàlıhâyûk, Hellenistic, settlement
Presentation Preference - Oral

Gathàlıhâyûk 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, Gathàlıhâyûk 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, Gathàlıhâyûk is a very good example of settlement characterized by diachronically visible social and economic complexity and cultural heterogeneity. The theme of my paper is to present the results of an analysis of late archaeological strata registered in the TP Area. Phases of settlement presented in the first part will become a base for further interpretations. From this,
it will be possible to show organizational variability of space, which will be a starting point for interpretations focused on changes in perception of this place. In the result my paper, I will indicate the most important economic and social changes that took place in Câștigăști. That will be the answer not only for the question about the role of changes on the region but also at the wider scale of Anatolia.

TH1-34 Abstract 22
Comparative Study of Settlement Systems in the Bronze Age and the Medieval Age

Author: Dr. Pusztaîné Fischl, Klára, University of Miskolc, Miskolc, Hungary (Presenting author)
Co-author(s): Pusztaî, Tamás, Herman Ottó Museum, Miskolc, Hungary
Keywords: Bronze Age, Middle Age, comparative study, settlement structure and using of space
Presentation Preference: Oral

Comparative studies on built environments between prehistoric and historic times at different geographical scales have yielded important results in various parts of the world. In particular, analyses of complementary datasets contributed to a better knowledge of similarities and differences in socio-economic developments at the local scale. However, less effort has been devoted to the matter concerning how abundant historic datasets can facilitate in understanding prehistoric settlement dynamics.

The aim of our paper is to examine settlement nucleation processes at the regional scale during two periods in Northeast Hungary. Two geographically distinctive, neighbouring regions, the Borsod Plain and the foothills of the Bükk mountains, will be included in this study, with particular focus given to the settlement patterns for the specific periods of the Bronze Age (between 2200 and 1600 BC) and the Middle Ages (14-15th centuries AD). We will explore the topography, settlement networks, space and land use, as well as house construction methods in a comparative regional and temporal framework. The economy of these two periods is based on agriculture and the exploitation of the immediate environment. The historical and cartographical sources, landmark inspections, and the well-known road-networks make possible to determine central sites contra villages in the 14-15th century AD in the micro-region. Based on the analysis of building methods, communal spaces, spatial organisation of the homes and the villages, and economic activities in these two periods, we propose a model that will determine critical factors about the Bronze Age settlement pattern (roads, central places, distribute places and activities between settlement).

TH1-34 Abstract 23
An exemplification of the socio-political make-up of the Late Bronze Age polities from Hungary

Author: Czukor, Péter, Móra Ferenc Mázeum, Szeged, Hungary (Presenting author)
Keywords: Bronze Age Hungary, Fortified settlement, Landscape, hierarchy
Presentation Preference: Poster

In the area of the Békés-Csanád loess table and the Banatín, SE Hungary and W Romania, a series of large fortifications enclosed by ramparts and ditches emerged in the period of 1300-1100 BC (Rei. Bó–ÍdAT). 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 were surrounded by a series of smaller rural settlements, forming a three-tiered settlement hierarchy, indicating a fairly complex society. The function of these settlements is debated to some degree, as they have not yet yielded substantial domestic remains, and their interpretation as refugia or ritual centres is also possible. This new type of settlement indicates significant although, up till now hardly known social and economic transformations in the last centuries of the 2nd millennia BC, in the Late Bronze Age. In my poster I will summarise the results of the research focusing on one of these fortifications, Makó-Róka-Telezár and its hinterland. This small, 42 hectare large fortified site is investigated within the framework of a wider, microregional settlement study and will be interpreted in terms of the socio-political make-up of the Late Bronze Age polities.

TH1-34 Abstract 24
More than meets the eye: burial monuments and “landscapes of power” in late Iron Age Britain

Author: Minkévičius, Karolis, Vilnius University, Vilnius, Lithuania (Presenting author)
Keywords: GIS, Iron Age, Landscape Archaeology
Presentation Preference: Poster

As human beings, the desire and necessity to “change” landscape has been with us from the beginning of our existence. From the basic acts such as hunting or setting a campfire, to a more complex ones like constructing a transcontinental canal, our actions have been constantly changing the landscapes we inhabit. In prehistoric Europe these changes usually were an unintentional by-product of other activities. However, it is becoming increasingly evident that this was not always the case. Landscapes play an active part in societies, rather than being a passive reflection of (some of) their actions. They influence and are influenced by, social interaction and social structure. Throughout the history numerous societies have used this phenomenon to their advantage. Here it is being suggested that such landscape control strategies can also be observed in the later Iron Age in eastern Britain. During this period the re-emerging cremation burial monuments of social elites were used in the creation of “Landscapes of Power”. Some of them were used to visually dominate the social and political landscapes of the late Iron Age oppida. This hypothesis has been explored using GIS-based visibility analysis. By presenting case studies of Folly Lane, Lexden and Stanway it is argued that the role these burial monuments was not only to pay tribute to the deceased, but also to assist in establishing, developing and maintaining social and political power at the oppida.
BUILD WITH MUD IN THE NEOLITHIC: TECHNICAL CONSTRAINTS AND CULTURAL CHOICES

AUTHOR(S): Peinetti, Alessandro, UMR 5140, Paris, France (Presenting author)
Keywords: earthen architecture, wattle and daub, cob, mudbrick, plaster, technology, household, dwelling, Neolithic.

Presentation Preference: Regular session

At the beginning of the Neolithic in the Middle East, the hand modeled mud was a structural material involved in the houses building. In various parts of Europe this material is gradually used, in the Balkans but also in the Neolithic of the Western Europe, in Italy, France or Spain for example. Earthen materials are used for multiple functions: as cob or mudbrick to realize upstanding load bearing masonry, as daub to cover wooden walls, as plaster for walls or constructed floors and to shape containers, furniture or grain silos as well. This session aims to present the developments of the archaeological research on this subject, focusing on rural settlements and villages, in particular during the Neolithic. Contributions about Neolithic/Neolithic transition and Bronze age are welcomed as well. We propose to raise the question of the function of these various earthen constructions and to raise the question of determinism governing its use in competition or in complementarity with stone and wood, through models involving technical constraints and cultural choices. Papers can be also focused on the relationship between raw materials (selection and exploitation), technical choices and dwelling function. Spatial analysis, ethnoarchaeological, theoretical and experimental studies are encouraged.

Some remarks about the role of environment and society in building technology

AUTHOR(S): Peinetti, Alessandro, UMR 5140, Paris, France (Presenting author)
Keywords: Building technology, Earthen construction, Ethnoarchaeology, Presentation Preference: Oral

Most often, the archaeologist underline the role played by environmental constraints in the elaboration of architectural models, in particular for the employed raw materials. This paper wants to explore the complex relationship between environment, cultural choices, building traditions, socio-economical context and technical constraints, presenting ethnoarchaeological and archaeological examples of earthen constructions in different European contexts. First of all, the observation of modern wattle and daub in northern France allows some remarks about the relation between employed raw materials and techniques. The results of the Neolithic wattle and daub analysis from different sites in Piemonte (Northwest of Italy) stress the role played by the environmental factors in the construction of the houses. In prehistoric contexts, as in vernacular architecture, the employed building materials are often local and show a good fit with the ecological environment. That's a sort of constant, but the identification of raw materials is just a first analytical step. The eneolithic settlement identified at “Ca’ Nova di Minerbio (BO)” in 2015, whose excavation has not yet finished, can be dated to the Neolithic period. The building shows traces of fire. A technological analysis has been carried out, using a geoarchaeological approach, in order to identify various post-depositional processes involved in mud structure degradation and how they form the contemporary archaeological record. This paper presents an ethnoarchaeological study, conducted in recently abandoned mud structures in two distinctive environmental regions: ad South Israel and temperate Northern Greece. The taphonomy of earth floors, mud brick walls, thatched roofs and microscopic activity remains was studied. Field observations and excavations were carried out with various microscopic laboratory-based analyses. The paper supplies guidelines to the identification of mud structures, occupation deposits, thatched roofs and degraded mud brick material. The results of this study presents the importance of combining macroscopic and microscopic analytical methods to distinguish between various infill sediments in order to enable better interpretation of archaeological mud structures.

The Aftermath of Mud Houses: Degradation and archaeological site formation

AUTHOR(S): 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: ad South Israel and temperate Northern Greece. The taphonomy of earth floors, mud brick walls, thatched roofs and microscopic activity remains was studied. Field observations and excavations were carried out with various microscopic laboratory-based analyses. The paper supplies guidelines to the identification of mud structures, 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.

Burning Down the House – Experimental Chalcolithic house construction and destruction by fire

AUTHOR(S): Johnston, Stuart, Durham University, Durham, United Kingdom (Presenting author)
Keywords: Building with mud in the Neolithic, Chalcolithic, experimental, Trypillia
Presentation Preference: Oral

During the summer of 2014, two 2/3rd-sized timber-framed wattle-and-daub houses similar to those constructed on Cucuteni-Trypillia settlements, including the Trypillia mega-sites, were built in Nebelivka, Kievograd Oblast, Ukraine by a joint British and Ukrainian team of archaeologists and craftpeople. One of the houses was deliberately destroyed by fire in May 2015 to study the process of its collapse and the potential formation of the ceramic-like burnt daub remains so often found during archaeological excavation of Cucuteni-Trypillia sites from the Balkan Chalcolithic period.

Observations of the collapse of the two-stone-house have given new insights into the processes forming the archaeological record and cast doubt on accepted theories of the formation of these huge Chalcolithic sites, some of which are as large as 320 ha. The most surprising result concerned the very large quantities of firewood needed to burn the house completely. Coupled with experimental work carried out in the United Kingdom using the same materials, this experiment has presented evidence which challenges existing theories of house construction. By adapting test methods developed for the strength of concrete, masonry, and rammed earth construction materials, the effect of heating on the material strength of daub construction material was investigated in a series of compression and shear tests. The results challenge the theory that controlled burning of wattle and daub structures was used deliberately as a construction technique to reinforce structures. The Nebelivka house-building and -burning experiment is the latest in a long line of experiments that supports the notion of deliberate house-burning at the end of a house’s use-life.
archaeological features and layers relating to deterioration processes of built features. Burned daub fragments were entirely collected during the excavation as well. These materials are first analyzed from a macroscopic point of view. Technological analysis can be linked to the functional aspect of each structure and activity areas, to highlight both technical choices and socio-economical behaviors.

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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Co-author(s) - Forte, Vanessa, Dipartimento di Scienze dell’Antichità, Roma, Italy
Co-author(s) - Medeghini, Laura, Dipartimento di Scienze della Terra, Roma, Italy
Keywords: Bronze Age, cooking platform, plaster
Presentation Preference - Oral
The Bronze Age site of Oratino – La Roccia is located on a small terrace beside the southern slope of a rocky hill that dominates the eastern side of the high Bilerno river valley, along an important route that penetrates the inland region of central-southern Italy from the Adriatic coast. The research conducted so far on the site allows us to recognize different moments of occupation mainly from 15th and 12th century B.C. During the final phase of occupation a series of six layers, characterized by the presence of hearths and cooking structures is attested. They can be related, mostly, to food preparation/treatment and consumption activities, repeated in a short lapse of time. Moreover, these activities were performed in an open area and are not linked to specific domestic structures, but probably in a collective sphere, by a restricted number of people.
Several plaster fragments, related both to the cooking platforms and with other accessory structures, were found in these layers of occupation.

A broad use of mud for coatings or covers of huts and an exploitation of raw materials macroscopically different for the manufacture of small structures, as cooking platforms, is observable from the macroscopic analysis of morphometrical and technological features of archaeological materials. The application of compositional analyses, as petrographic analyses on thin sections will allowed to characterize composition and firing temperatures allowed to identify potential sourcing areas of clays that have been compared with archaeological material composition to establish the provenance of raw materials.

TH1-35 Abstract 06
Technical evolution of adobe building materials and work specialisation at Ra’s al-Hadd HD-6 (Oman)
Author - Dr. Azzur, Valentina, UMR 7041 ArbScH - Vegmo, Nantes Cedex, France (Presenting author)
Keywords: Adobe composition, Grain size distribution, Work specialisation, Early Bronze Age, Oman
Presentation Preference - Oral
Earthen materials are introduced in Oman at the end of the 4th millennium BCE, when a series of technological evolutions mark the transition to the Early Bronze Age. The very beginning of such transformation, however, remains scarcely understood from the point of view of settlement life and activities, as the 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 techniques and methods of construction used on site, hinting at increasing specialisation of work and of the workforce.

TH1-35 Abstract 07
Clay, wood and stone - Neolithic architectures on the channel sea shore, at Lillemer
Author - Laporte, Luc, CNRS, Rennes, France (Presenting author)
Co-author(s) - Bizen-Jaglin, Catherine, CeFRAA, Saint-Malo, France
Keywords: Copper Age, Dwellings destroying or burning, Questioning 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 structuring, were seen like being representative of the social hierarchy. The Copper Age in S-E Europe has been characterized by the Produced and burnt dwellings, the Classic Age dwellings and the building of settlements. The house is the main important social, ideological and economic entity of the society in Copper Age in S-E Europe. The materials used to built, the form, the inner space structuring, were seen like being representative of the social hierarchy. The Copper Age in S-E Europe has been characterized by the Produced and burnt dwellings, the Classic Age dwellings and the building of settlements.

TH1-35 Abstract 08
Arslantepe domestic architecture: households and technology in the Early Bronze Age
Author - Liberti, Giovanna, Italian Expedition in Eastern Anatolia, Rome, Italy (Presenting author)
Co-author(s) - Alvaro, Corrado, Sapienza University of Rome, Rome, Italy
Co-author(s) - Cernea, C., History Museum of Ialomiţa County, Slobozia, Romania
Co-author(s) - Hait, Julia, INRAP, Paris, France
Keywords: Arslantepe, domestic architecture, Early Bronze Age
Presentation Preference - Oral
We present a study on the organization and use of space and on issues related to the domestic architecture of the Early Bronze Age settlements at the archaeological site of Arslantepe-Malatya, eastern Turkey. The extensive excavation (about 2000 square meters) provided us with the stratigraphic links with the previous and subsequent levels, allowing the analysis of different households and the reconstruction of a coherent and well-articulated housing model developed in the second half of the III millennium BC. Moreover, the continuity of the archaeological excavations from 1961 onwards made it possible to examine, through the “deconstruction” of entire settlements, not just the building materials and the techniques used in the construction of houses and facilities, but also the evolution over time of each structure. The construction, evolution-abandonment-destruction cycle of a compound thus acts as a pivot in the interpretation of the huge amount of data at our disposal.

Most often, socio-cultural factors such as family structure, the position of the various members, their basic needs and social contacts play a primary role in the formation of a house. The goal of this work is to shed light on the relationship between domestic architecture and space organization, recognizing the activities inside and outside of the houses and reconstructing the daily life of a given household with regard to those bordering with it. To define the relationship between domestic architecture and organization of space we analyzed the variables that influence them over time. Hence, to unravel the social structure of the group we considered the architecture and the use of space as a single set that evolves in a horizontal (in space) and vertical (in time) way.

Our analysis is thus both structural, because it focuses on the architecture, the construction techniques and the facilities, and material; because it considers the function and location of the vegetal, animal and mineral finds that help to clarify the household subsistence economy. The interdisciplinary approach in recovering data follows the methodology of Salvatore Maria Puglisi, who started the Italian Expedition in Eastern Anatolia in 1961: alternative points of view and different theoretical approaches, using data coming from disciplines other than archaeology, in this case architecture, ethnography and archaeometry.

TH1-35 Abstract 09
The end of the life cycle: destroying or burning dwellings in Copper Age
Author - Dr. Popovici, Dragomir Nicolae, National History Museum of Romania, Bucharest, Romania (Presenting author)
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Co-author(s) - Carpio, I., History Museum of Ialomiţa County, Slobozia, Romania
Co-author(s) - Parască, V., Lower Danube Museum, Cărai, Romania
Keywords: Copper Age, Dwellings destroying or burning, Questioning culture
Presentation Preference - Poster
Co-author(s) - Hâlă, C., National History Museum of Romania, Bucharest, Romania
Co-author(s) - Vlăd, F., History Museum of Ialomiţa County, Slobozia, Romania
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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 Gumezya 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 Gumezya culture in Vth mil. BC.

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**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 Garrigues). Plains are composed of lagoon areas, layers of gravel, alluvial aquifers. Karst wetlands presents typical cavital shapes, such as sinkholes or avens. The soil there is stony and composed of numerous limestone outcrops, while the sedimentation is low (Guthier, 1973). Both plains and karst wetlands were inhabited territories ever since the Neolithic era. However, the raw material resources that are directly available do modify the builders’ choices and highly affect the housing types. In the garrigues areas, one can find a large number of houses that have walls made of dry stones. Conversely, on the coastal plain, unbaked clay architecture was proven on several sites, such as La Capoulière (Mauguio, Hérault) or Mitra (Garons, Gard). Though, this kind of geographical determinism ought to be further qualified. Indeed, cases were seen where environment constraints have certainly been overcome by technical and cultural traditions and had a direct impact on the builders’ choices. In the Rhône plain, several dry stone houses were found. Yet these structures are established on soft substratum (Jallot, 2011). Likewise, in karst areas, the discoveries of the use of a combination of stone and mud are numerous. It is true that until recently, and particularly in karst environments, the excavation of settlements was essentially based on the recognition of remains from long-lasting materials – which often precluded mud remains. But new problematic arise 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). Fortbouisse (Villefranche, 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 (Milaou, Aveyron), and earth pads were identified on the spot (Jallot, 2000). On the La Vayrasère site (La Bastide-Pradine, Aveyron), unbaked clay may have been used as a binding agent between the rubble stones. And the walls have seemingly been raised with mud on the foundations (Fourné, Convertini, 2000).

Thus, the use of mud associated with stone constructions in karst environments can be seen in roofs, coatings, as binding agent, on foundation or in various layouts. The currently available data is not numerous enough to establish significant recurrences, yet new prospects are emerging. Does the use of mud in construction satisfy technical and/or cultural needs? What is the real impact of environmental constraints on the communities’ choices in the Neolithic era? These questions highlight too little explored problematic, 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.

**TH2-01 Abstract 01**

**New approaches to engage farmers with buried archaeological heritage in the UK**

**Author**: Webber, 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

Author - Dr. Chadburn, Amanda, Historic England, Bristol, United Kingdom (Presenting author)

Keywords: Management, Partnership, Rural

Presentation Preference - Oral

The successful management of rural landscapes depends on good partnership working. This contribution to the Round Table will discuss two case studies from Southern England both of which contain some highly significant archaeological remains - the Salisbury Plain Military Training Area, and the Stonehenge and Avebury World Heritage Site, both of which have many and varied stakeholders and needs.

Integrated Cultural Landscape Planning at Ancient Corinth, Greece

Author - Prof. Wright, James, American School of Classical Studies, Athens, Greece (Presenting author)

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Keywords: Cultural Resource Management, Heritage, Landscape

Presentation Preference - Oral

An integrated collaborative master plan has been developed between 2014 and 2016 to protect, preserve and present the 6 square kilometer area that encompasses all the natural and cultural components of the Landscape of Ancient Corinth, Greece. It comprises the ancient harbor at Lechaion, the ancient city, and the citadel of Acrocorinth. These include mixed nature and heritage zones including the (a) wetlands and ancient harbor facilities of Lechaion and the mixed industrial and agricultural region of the plain, (b) the village of Ancient Corinth and its agricultural outskirts in which are situated the remains of the ancient city, and (c) the archaeological 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 Corinth, the American School of Classical Studies at Athens, and the Ministry of Culture. Essential partners of the team are the consulting firm of TPK and MedINA (the Mediterranean Institute for Nature and Anthropos). The goal of the integrated plan is to provide a sustainable infrastructure and administrative organization for improving visitor appreciation of the various elements of the designated nature and heritage park by improving access to it and within it for a variety of uses including such things as bird watching, wild and cultivated plant appreciation, and guided paths through the historic monuments and the museum that display the multi-layered History of the famous city of Ancient Corinth. An essential part of the master planning process has been involvement of members of the local population represented by all sectors (citizens, civic groups, civic officials, regional officials). Planning has been aimed at producing proposals for major funding to improve infrastructure and rationalize access, add proper signage and displays, and to consolidate and conserve standing remains. The proposals are oriented to a long-term strategic plan that will seek public (Greek and EU government) and private (foundation and individual) funding. As a part of this endeavor the committee intends to submit proposals for Ancient Corinth to be listed as a UNESCO World Heritage Site.
Managing the archaeological heritage

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

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 to heritage being downplayed or not seen as serious as on the part of the perpetrator. This paper draws on experience of working directly with members of the public who find objects, not least metal detector users, and will draw on experiences which are often not discussed or considered at policy level. It will focus on the assumed role of the market in driving low level 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. Individuals 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 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

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.

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**Keywords:**
- Digital catalog of Latvian archaeological artifacts at risk
- Latvian Academy of Culture
- Law enforcement institutions
- Cultural objects

**Presentation Preference:**
- Regular session

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Local and Global Educational Enrichment from Corinth Excavations

Object-based (Distance) Learning:

Medieval culture with future generations. In the meantime, it is a project that is changing the role of archaeological excavations. Corinth aims to communicate these interactions among peoples through time and share the legacy of Ancient Greek, Roman and Medieval culture. There have been successes and failures in the process of creating educational outreach as it is something new, innovative, and unparalleled for an excavation in Greece. However, suggestions for educators are provided in the lessons for adaptations for younger or older learners.

The lesson plans are based on objects from Corinth Excavations representing periods from antiquity to the present. Themes include water management, healing practices, mysterious rituals, analyzing evidence from the Classical period, cultural achievements of the Roman Empire, pottery designs and styles of the Byzantine Empire, the development of Christianity, interpreting Frankish skeletal material, and taking a digital field trip.

The purpose of the outreach effort is twofold: to create communication between archaeologists and historians who produce new and exciting results with the general public; and to inspire outside audiences to continue to learn about the legacy of Ancient Greece, Roman and Medieval culture. There are many successes and failures in the process of creating educational outreach as it is something new, innovative, and unparalleled for an excavation in Greece. However, 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.

If the bomb falls

How do you communicate the war of an underground Cold War Command Centre? During The Cold War Civil Defense Forces in Denmark had placed a number of Command Centre’s throughout the country to be prepared. The local community had monthly drills, training for the worst case scenario. Command Centre Skanderborg was placed in a bunker build by the German Luftwaffe during WW2 as part of their headquarters in Skanderborg. The bunker was rebuilt in 1963 and in function until 1993.

The Cold War was a time of great fear throughout the world. For today’s young people, that can be a bit hard to imagine and understand.

In the process of deciding how to communicate the bunker and its function Museum Skanderborg teamed up with the local high school. Through discussion panels and an innovation project that involved a gamification scientist as well as the museum curators, the work with the students led to the development of an educational roleplay in the Command Centre together with professional roleplay instructors and teachers. The aim of the roleplay is to make the youngsters feel a bit of the panic for the Big Bomb. Several classes have already tested the game. This paper will put forward the concept as an inspiration for others and seek to evaluate on the weaknesses and strengths in the project so far.

"Know thyself" or visitor experiences in open-air museums (case study of Belarus and Lithuania)

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 own national and cultural identity or, in other words, to get “know thyself”, as Socrate’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.
Managing the archaeological heritage and the strategies to connect it back to its community. The contribution to the creation of the future museum.

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 and collaborate through reciprocal support or even conflict. The future museum will be an integral part of a uniform process that starts by identifying an archaeological trail and ends in the exhibit cabinet or in storage. In this context, archaeologists should meet with a number of other specialists—all in distinctive roles—in order to promote the composite knowledge of the past. This process should be guided by professional ethics and respect. Our proposal concerns the application of such a project in one of the most important museums in the world, the Museum of Olympia, as a vehicle of sophisticated museological practices that will contribute to the creation of the future museum.

Curing 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 1933.

In the 1840s, when archaeology was first beginning to blossom, becoming as more of a vocation than a science, Count Eustachy Tyszkewicz and his brother Konstantin moved from simply collecting Italian art to excavating approximately 200 barrows around their native Lithuania, in present-day Belarussia. The Russian word for what we call “amateurs” translates literally as “lovers,” and this better captures the sense of this first generation of essentially noblemen who combined a passion for archaeology with similar fascination with ethnography and history. In 1842 the Tyszkiewich brothers opened three rooms in one of their palazzos into the first local Museum of Antiquities, more than a curiosity shop. It was visited by the royal family in the first year. In 1856, in concert with the anticipated liberalizing policies of new Tsar Alexander II, the collection was transferred to more space in the Library of the former University, which had been closed in 1832 following the Polish rebellion. Unfortunately for them, the second Polish rebellion of 1863 prompted the closing of this Commission, thereafter designated as only intended to be “temporary” and the redistribution of much of the museum to others, primarily Moscow’s 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. Muraev, who would receive an honorific “Vilenskii” added to his surname in recognition of the fervor with which he instigated the de-Polonization of the Northwestern Region (Lithuania and Belarussia) organized a commission for the inspection of the objects on display in the Museum of Antiquities. The crash between Tyszkewicz and the Commission, and the subsequent congress, illustrate the use of archaeological artifacts to disrupt an identity during the Age of Empire.

The Euphronios Krater: from the illegal Art Market to the Rebirth of a Museum

A forty years long journey allowed the return to the place of origin of an admirable work, which has reinvigorated the fortunes of a museum and of a local community. The Euphronios 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-III BC the population was around 35,000 people. The city is pretty well known thanks to the number of Etruscan necropoli 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 necropoli 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 adventurous vicissitudes 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 site. Among the objects in the Euphranios krater, another 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 Euphranios works were displayed in the temporary exhibition Hosto: Recovered Masterpieces at the National Museum of Villa Giulia in Rome and they were supposed to enter the permanent collection.

The location of the krater and the krater in Cerveteri is the result of collaboration between the City of Cerveteri, the Southern Lazio and Etruscan Archaeology Superintendence and the Lazio Region. On the tenth anniversary of the UNESCO recognition of the Etruscan necropoli of Banditaccia (2014), the krater has been transferred for a month at the Centre National Museum, and thanks to a significant increase in visitors, the exhibition has been extended until December of that year. On December 18th 2014, to close the decade of celebrations, the Superintendent accepted the request of the City of exposing the krater also close to the krater. For 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 use of dispersed museum at the centre of cultural heritage reform, it was decided to permanently transfer the two masterpieces to 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.
In 2015 “Dagen saannle”, a magazine for decision makers in the public sector wrote: “The trend is hopeless. 19 Swedish municipalities have shrunk every year for two decades. Twelve of them may have died out before the turn of the century. In 2070, Ljusnarsberg and Storumsund will be the first in line for the precipice, if the population continues to decline at the same rate as now.” Imagine being a citizen in Kopparberg, the small town in the municipality of Ljusnarsberg, and waking up to that announcement. Well, you probably wasn’t surprised, but still. My municipality has a sentence, a death sentence and a given date when it’s all good, by, time to pack the things and leave. Several of the inhabitants in Kopparberg wasn’t asked at all when national media called out the message. And the inhabitants in the other small municipalities in the former so mining district of Sweden is not asked for any opinion either. Meanwhile, a group of eleven artists that bought an old mine in the area thought “Hey, what about the locals, 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 above is in great contrast to the other, where local school children excavates an old cottage where the lernmyan 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.

JASA – the road from ‘irrelevant luxury’ to ‘archaeological jewel’

Author - Balen, Jacqueline, Archaeological museum in Zagreb, Zagreb, Croatia (Presenting author)
Co-author(s) - Bora, Jelena, Zagreb, Croatia
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Co-author(s) - Mandic, Marin, Zagreb, Croatia
Keywords: Deprivation and the Historic Environment
Presentation Preference - Oral

Archaeological research most often includes the influx of experts into a new community where research is conducted, inevitably leading to new relations. In 2014 and 2015, a similar situation occurred in Croatian Baranja, where archaeologists worked on the future All 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 or where culture is seen as an irrelevant luxury, no longer enjoyed even by the elite that used to vacation there.

From an archaelogical point of view, Baranja is an extremely rich and valuable region. However, as with all other aspects of society, certain well-known and systematically excavated sites always cast a shadow on the smaller ones which rarely get a chance to be properly excavated and/or presented to the public. The aim of this contribution is to show how all of this can be changed by applying the ‘where there’s a will, there’s a way’ approach in a situation where the local community never saw culture as something important and potentially lucrative, both financially and socially.

The site of Jauhov salaš (JASA) is an example of how archaeologists employed by the Archaeological museum in Zagreb helped reanimate culture-related activities in the community which, just like the team of experts, realized that this site is a jewel in the region, and that their region is an archaeological jewel in the entire country. We will focus on the many months of work conducted by about locals and about 20 archaeologists, and the impact the latter made by raising awareness on the area’s rich cultural heritage, along with financial benefits experienced by everyone included in this complex process. We will show how the archaeologists blended into the local community by supporting the local art and music scene, and by participating in public events such as bean cooking contests.

Finally, we will highlight the fact that, if experts take time to raise awareness about cultural heritage in the local community and support the existing tourist offer, cultural tourism can be reanimated, or even created, to the mutual benefit of experts in the field and local entrepreneurs, thereby creating conditions for promoting and presenting research to the public, as well as for presenting the local heritage to archaeologists, ultimately leading to more research and prosperity on a plethora of levels. In the case of JASA, the ongoing communication resulted in a project conducted by both archaeologists and local stakeholders - the first archaeological exhibition ever held in Bell Manastir, a conic cross-section of the knowledge procured in the excavations, and a milestone from which we can move forward into future collaboration.
TH2-04 Abstract 02

The impact of local archaeology societies in England

Author: Roberts, Hayley, Bournemouth University, Poole, United Kingdom (Presenting author)

Keywords: Amateur Archaeology, Community Archaeology, Professional Archaeology

Presentation Preference: Oral

Non-professional archaeology was an integral component in the development of the archaeological profession in England. As the profession developed it distanced itself from the amateur sector and, on occasion, the relationship became fractious. However, now both sides have matured and harmony is reigning more widely, although the relationship is still complex. Local archaeology societies played, and still play, a key role in the historic mediation process, bringing these two parties back together, but what are local archaeology societies, what do they do and why do they do it? They are rarely discussed or credited in archaeological literature but in order to bring total harmony it will be crucial to understand them and the impact that they have. Local archaeology societies in England range from county societies, who produce journals and manage museums to small ‘hobby’ groups with a primary interest in excavation and from metal detector clubs to groups that focus purely on archival research. Often they use elements of professional practice but sometimes components are missing. This can have a crucial effect on their impact. Using case studies gathered from the perspective of both amateurs and professionals in the south of England, this presentation will discuss archaeological discoveries made by and the research processes used by local archaeology societies. It will also consider the impact of their communication within the profession as well as the wider public.

This will demonstrate that not only do local archaeology societies have significant impact on archaeological understanding and on the archaeological profession but that they have even greater potential. By bringing clarity of understanding about local societies, this presentation will also demonstrate that the distinction between amateur and professional archaeologists is a little blurred in ways that professional archaeologists might not expect.

TH2-04 Abstract 03

Issues of metal detecting in Finland

Author: Dr. Weasman, 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. 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.

TH2-04 Abstract 04

Aspects of metal detecting in Finland

Author: Niukkanen, Marianna, National Board of Antiquities, Helsinki, Finland (Presenting author)

Co-author(s): Kuitunen, Jutta, National Board of Antiquities, Helsinki, Finland

Keywords: Finland, metal detecting, stray finds

Presentation Preference: Oral

Metal detecting has become a popular hobby in Finland. No permission is needed to use a detector, and there is a lot of material easily available on the Web that can lead to new archaeological findings. The amount of archaeological artefacts and sites found every year by detectorists is significant, and now also foreign “treasure hunters” have shown interest in detecting in Finland. The presentation deals with metal detecting against the Finnish legal background, the questions of heritage management and depositing stray finds in archaeological collections as well as the challenges in communication between the authorities and detectorists.

TH2-04 Abstract 05

Stone shaft-hole axes: between professional and non-professional archeology

Author: Lissievič, Scarhej, 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 magnate clans. The main way of replenishment of these collections was collection or confiscation.

Another relationships with stone shaft-hole axes formed in the rural environment. Peasants have seen their pragmatic and magic sense in this category of artifacts. Since the XVIII-XX centuries ethnographers noted the existence of different popular legends about the origin of the stone axes, described their used by peasants.

There was a surge of interest in archaeological finds in the 19th century and as a result an increase of a private archaeological collections in Belarus. It should be noted that the archaeological studies were rare and sporadic. But the number of stone shaft-hole axes in private collections was more than 2 thousands.

After the fall of the Russian Empire and the creation of the USSR the system of museums was founded. The main function of them was accumulation of all sorts of antiquities. The private collections became the basis of the museum collections of stone axes was. The additional source of replenishment of museum collections was the work of professional archaeologists. Simultaneous the private collections continue to exist.

After the WW2 the additional source of accumulation of archaeological artifacts became school museums. Today, the school museum sometimes has better collection of stone axes then the state than the public museums.

TH2-04 Abstract 06

Blunt instruments or intelligent solutions?

Author: Moeller, Katharina, Bangor University, Bangor, United Kingdom (Presenting author)

Co-author(s): Karl, Raimund, Prifysgol Bangor University, Bangor, United Kingdom (Presenting author)

Keywords: heritage laws, metal detecting

Presentation Preference: Oral

Compared to the UK the heritage laws in Germany and Austria are much more restrictive when it comes to metal detecting. But are these stricter laws really an effective deterrent? If so, the number of metal detectorists should be higher in the UK than it is in Austria and Germany. However, due to the stricter laws, the actual number of metal detectorists in the latter two countries is unknown.

To compare numbers of metal detectorists in the countries mentioned above, this case study looks at metal detecting online fora, especially their membership numbers. These indicate that there are more metal detectorists in Germany than there are in the UK. This suggests that laws alone do not prevent people from looking for archaeological material. Laws do, however, influence other patterns of behaviour, particularly the reporting of finds to the authorities by their finders. Stricter laws do not seem to deter metal detecting, they deter finds reporting.
Thus, to ensure that as much archaeological information as possible is preserved or recovered and recorded properly by its finders, another solution must be found. Allowing for more public participation in archaeology in Austria and Germany might be one way to achieve this goal.

TH2-04 Abstract 07
Ignored and forgotten: avocational archaeologists and the lithic assemblages from fieldwalking

Author - Dr. Wright, Dene, University of Glasgow, Glasgow, United Kingdom (Presenting author)
Keywords: Avocational archaeologists, fieldwalking, lithic assemblages
Presentation Preference - Oral

Fieldwalking and the surface collection of lithic material on the Ayrshire and Wigtownshire coasts of Scotland has a long tradition dating back to the 1880s. This was in no small part due to the efforts of a number avocational archaeologists, and their participation with Ayrshire and Wigtownshire Archaeological Association founded in 1877. The 1970s witnessed the last in this line of avocational archaeologists who undertook such tasks in Ayrshire and Wigtownshire. There was no tradition of fieldwalking in South Lanarkshire, inland and adjacent to East Ayrshire. Coincidentally, the 1970s heralded the advent of this activity in South Lanarkshire. Hugh McFadzean (1979-2008) commenced fieldwalking in the Avondale District, which continued unabated until 1981. His work as an avocational archaeologist also involved fieldwalking forays in East Ayrshire, Isle of Bute, Fife, Stirlingshire and Wigtownshire. Hugh’s fieldwork in these other locations continued until the 1990s. As a case study, this paper will look at his motivations to undertake avocational archaeology in Avondale, and consider his contribution to the archaeological record. It will also critically reflect upon personal curation and his research into the lithic surface collections, and the contradiction to the legal position in Scotland under Treasure Trove and the concept of bona vacantia. Finally, drawing upon my own research the importance of the surface collections of lithic material to academic enquiry will be highlighted.

TH2-04 Abstract 08
Social Network vk.com and Archaeology: Sight from the East Europe

Author - Tkach, Evgeniia, Institute for the History of Material Culture RAS, Saint Petersburg, Russian Federation (Presenting author)
Keywords: public, social media
Presentation Preference - Poster

The purpose of this paper is to introduce to archaeologists the social network vk.com, which is wide spread in Eastern Europe. There are a lot of communities and events, which present their information and materials in the Internet. Thanks to them non-archaeologists, users, could learn a lot about archaeology. In the VK there are many communities and pages, where professional archaeologists introduce new information and last discoveries and try to do this using non-professional language. These information could help to understand better archaeological work to the non-professionals and to involve more people in science. In my poster I want to present some examples of these communities.

TH2-06 Abstract 01
The road to a working party is paved with good intentions

Author - Dr. Waugh, Karen, Vestigia BV Archeologie & Cultuurhistorie, Amersfoort, Netherlands (Presenting author)
Co-author(s) - Dr. Hey, Gill, Oxford Archaeology, Oxford, United Kingdom
Presentation Preference - Round table

A draft proposal for setting up a working party to examine specific EIA issues was published in TEA 46. Following on from there, we would like to introduce the Round Table by presenting the progress made so far in defining aims and objectives for the working party. More importantly, the introduction should provide a structure for discussion and debate within the Round Table. It is hoped that the session will lead to a general consensus on a work programme that we can submit to the EAA Board for approval.

TH2-06 Abstract 02
The EIA Directive and Archaeology: the example of England

Author - Thomas, Roger, Historic England, Swindon, United Kingdom (Presenting author)
Keywords: EIA Directive, England, law
Presentation Preference - Oral

The 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 therefore affected by the organisational arrangements and professional approaches in each country. This paper will examine how the EIA Directive has been ‘transposed’ into English law, how it is implemented in practice in England, and how this has affected the professional practice of archaeology there. The paper will also consider whether there is scope for future improvements of the Directive itself, or of the ways in which it is implemented. It is hoped that this paper, focusing on one country, will stimulate discussion on how the Directive is being implemented across Europe, and of what improvements might be sought in the future.

The Environmental Impact Directive is the only piece of EU legislation which is directly and substantially concerned with the archaeological heritage. It has wide implications for the practice of archaeology in Europe, and is thus of particular importance to the EAA. Much development-led archaeology in Europe takes place on projects which are subject to EIA. The Directive is therefore responsible for the discovery and investigation of new archaeological sites and material. The Directive is an important EU-wide legal instrument, that prompts comparison of approaches in methods and practice. The manner of its implementation in the different EU member states reflects a key issue for the EAA. how to achieve the common societal goal of archaeological heritage protection and management against a background of widely varying local situations, approaches and pressures. The Directive therefore has potential implications for the archaeological profession that extend beyond the body of individual development projects that require EIA. The Round Table will aim to establish the future scope and work programme to examine specific EIA issues, with a view to setting up an EAA Working Party (see TEA 46). At this stage, the following activities are proposed: To review the Directive in relation to archaeology and cultural heritage, and to make recommendations on how the Directive itself, its implementation, or both could be improved; to identify whether the Directive would benefit from future amendment to reflect the provisions of the Faro Convention; to see how far EIA regulations can be used to improve the integration of the needs of spatial planning and heritage research; to contact other heritage organisations and projects to discuss possible collaboration on this issue; to establish a network of EAA members to report on the application of EIA to spatial planning and heritage protection in their countries.
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.

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 assessing 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 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

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 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

Thursday, 1 September 2016, 14:00-18:30
Faculty of Philology, Room SP2

Author - Novaković, Predrag, University of Ljubljana, Faculty of Arts, Ljubljana, Slovenia (Presenting author)
Co-author(s) - Horvat, Milan, VIA MAGNA Ltd., Vrškčica, Slovenia

Presentation Preference - Regular session

Due to the previously uncompetitive economies and outdated technological infrastructure, a great deal of former ‘eastern’ countries still remained largely underdeveloped. Compared to the average of the EU 15 in 1990 and 2014, only a few CE countries improved their GDPs from 40% to 80%, while others (Balkan countries, countries which stemmed from the former USSR) did not reduce the relative distance at all, their GDP on average remained less than 15%. This should not be ignored when reflecting the preventive archaeology in the countries in question. Prior to 1990s all heritage services were the domain of public/state institutions and the overall disciplinary structure and practice was greatly dominated by the academic institutions with institutes at national academies at the top (the Soviet-based model). In most cases this structure has survived until the present day, and is still exercising influence (formal and informal) on preventive archaeology. One of the consequences is the view that preventive archaeology to a certain degree still needs to serve academic agendas (and institutes). On the other hand, in some countries, though they kept to the Soviet-based model of national institutes, preventive archaeology achieved a much greater level of autonomy, with its own priorities and new practices and forms of organization, and some countries made even more radical changes. While, in general, all former ‘eastern’ countries ratified the La Valletta convention, the status and practice of preventive archaeology varies so greatly that it can hardly be observed through a single theoretical framework. The session is aimed at exploring and reflecting the conceptual trajectories and practices developed in preventive archaeology the last 25 years. Papers presenting major changes in legislation, economic status of preventive archaeology, changes in its social role, labour markets, level of technology and expertise, and above all the profession of archaeology in general, are invited.

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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 PhD, VIA MAGNA Ltd., Vrškčica, Slovenia

Keywords: Eastern Europe, preventive archaeology, rescue archaeology

Presentation Preference - Oral

Until 1990s and the abolishment of socialist-communist regimes in ‘eastern’ European countries, archaeological service (institutions and practice) in protection of cultural heritage was fully in the hands of state bodies which had to plan funds in their state budgets for performing their duties. These funds were normally coming from taxes, and therefore subsidized. The principle principle-payer was rare, only occasionally used, and normally not aimed at complete cover of the costs of archaeological protection. There were no clear and stable preventive strategies since the role of archaeological protection service was mostly seen as ‘reaction’ on newly discovered heritage, and not in the initial phases of spatial planning and development. The reasons for this were many, and not only associated with the fact that the ruling socialist regimes were highly centralized and bureaucratized. There were also reasons in prevailing cultural attitudes – culture or tradition of state ruling itself and cultural attitude towards the past and heritage. Thus the state has seen culture and heritage as special value of state (and public) which could not be let autonomous in its development.

Political and economic changes after 1989 had very different consequences in different countries in the field of preventive archaeology, and even the countries which shared similar or even equal systems of organization and practice of heritage protection (e.g. in former Yugoslavia or in the USSR) soon developed quite different systems which ranged from very liberal to very conservative in approach. In this respect it is interesting to note that ‘liberal’ systems of heritage protection which adopted more concepts of preventive archaeology and coupled them with the emergence of private sector of archaeological services, while countries with ‘conservative’ systems openly (or in disguised form) expressed opposition to preventive strategies.

The two conjunctures – ‘liberal’ and preventive attitude associated with heritage and development of private market of heritage services – are not necessarily directly correlated (e.g. case of preventive archaeology in France), but this correlation seems higher in the case of former ‘eastern’ countries. However, looking at different experiences in the last two decades, another set of questions should be 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?
Defining, Protecting, Interpreting active participation in the early stages of planning procedures. This process requires a developed set of tools which enable the quality of standards, especially in the case of development-led archaeological projects (final reports). Gray zone without a clearer anchoring represent service companies without expertise, which are for public and government institutions.

After 25 years in the Czech Republic still completely absent the existence of transparent conditions for private sector activity in archaeology. Preventive archaeology in the Czech Republic so far been rather limited.

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**TH2-07 Abstract 04**

Archaeological Heritage in Lithuania after 1990s: Defining, Protecting, Interpreting

**Author:** Dr. Piotr Bąk, University of Warsaw, Faculty of History, Warsaw, Poland (Presenting author)

**Keywords:** archaeology, cultural heritage, 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 maintaining information on restrictions of land use available for archaeological heritage managers and users.

Archaeological excavations, or "protection through documentation", can be identified as the main strategy of archaeological heritage protection. Development-led archaeology became the main form of scientific enquiry. As the contract archaeology system was developed, great attention is paid for excavations' quality control procedures. Formalized requirements for archaeological excavations (where and how archaeological excavations should be conducted) became a legal norm since 2011. These requirements also demand to protect archaeological heritage constructs in situ. Formalized requirements have to adjust conditions for contract archaeologists' competition as well. Nevertheless, objectification of criteria of archaeological research is modeling a situation of "typical archaeological excavations", and thus in the professional community raises discussions concerning the scope of scientific information obtained during the archaeological research.

Interpreting of archaeological heritage can be seen as means of constructing of local and national identity by various social and cultural groups. Nevertheless, interpreting of archaeological heritage by state bodies and thus reorientation of management perspective from "archaeological object" towards its "user" is still needs to be developed.

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**TH2-07 Abstract 05**

Implementation of the La Valletta convention: the Croatian perspective

**Author:** PhD Snrovica, Filomena, Archaeological Museum in Zagreb, Zagreb, Croatia (Presenting author)

**Keywords:** Croatia, in-situ preservation, preventive archaeology

**Presentation Preference:** Oral

European Convention on the Protection of the Archaeological Heritage, released by the Council of Europe in 1992, had a significant influence on the practice of development-led archaeology in Croatia. Ratification of the Convention in 2004 and its implementation in legislation brought drastic changes by which archaeology became a part participant in planning of spatial and infrastructural development. But the changes did not include the full range of requirements needed for the successful practice of preventive archaeology.

Considering this problem it becomes observable that the attitude expressed in the Convention considers prevention as a prerequisite for the preservation of cultural heritage, and, rather than through salvage archaeological excavations, acts through active participation in the early stages of planning procedures. This process requires a developed set of tools which enables informed decision-making on the treatment of archaeological remains. As a part of the same process, concept of care and protection of archaeological monuments is being replaced with an approach directed towards the management of archaeological heritage where the main focus is placed on the issue of long-term sustainability and thereby the issue of in-situ preservation of archaeological heritage.

As Croatian 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.

Bosnia and Herzegovina: preventive archaeology still recovering

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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 fragmental territorial and administrative organization: One organization on state level, two on lower, entity, level, as well as one on level of BiH district. Entity of Federation of BH is further divided in 10 cantons, of which 5 have cantonal institutions responsible for protection of heritage, while the other 5 have these responsibilities entrusted to the cantonal ministries. Because of disharmonized laws on state, entity and cantonal levels, there are possibilities for overlap of jurisdictions during protection of certain monuments, and potential for mismanagement. Entity of Republika Srpska is divided on municipalities, and has a centralized institution responsible for heritage protection.

General economic situation (BH is among the lowest ranked countries in Europe regarding the GDP) preventing any substantial investment, employment in services in public sector (heritage services included). Most of museum institutions on local level have barely sufficient financing for basic operation.

Inadequate (outdated) infrastructure: lack of trained people, equipment, unfilled institutional development.

Political situation. Because of the political deadlock over financing of 7 cultural institutions on state level, National Museum of Bosnia and Herzegovina was closed for almost 3 years, and other institutions that previously enjoyed state sponsorships in former state of Yugoslavia, have lost most of funds necessary to function properly.

Practice of Archaeological Heritage Management in the Motorway Constructing Programme in Poland

Author: Prof. Dr hab. Rospeci, Seweryn, Instytut Archeologii Uniwersytetu Łódzkiego, Łódź, Poland (Presenting author)

Keywords: Poland, rescue archaeology

Presentation Preference: Oral

One of the effects of political transformations in Poland of the last 25 years was a necessity of confrontation with huge infrastructural problems. One of them was, and still is, a poor state of motorways development. An aim of the speech is an analysis of this problem in reference to last ten years.

The above time limit is not a matter of chance. Till 2005 a system of selection of archaeological excavations on the motorway lines contractors was based on non-economic criteria – connected with scientific experience of contractors. Universities and archaeological museums were preferred.

From a scientific point of view this system was effective and enabled 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, which, in essence was, as a matter of fact, the only criterion of evaluation. The mentioned change admittedly ensured transparency of the procedures but it however turned out to be killing for archaeology. In this new situation archaeological research became an object of a market game. Sometimes, a victim of this game is social interest, and research are conducted at the lowest acceptable level.
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 Krahës: From a chance find to an archaeological protected site
Author - MA Poço, Enina, Archaeological Service Agency, Tirana, Albania
Co-author(s) - Klepli, Zguro, Archaeological Service Agency, Tirana, Albania, (Presenting author)
Co-author(s) - Meheini, Marijan, Archaeological Service Agency, Tirana, Albania
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Co-author(s) - Zoto, Rudina, Archaeological Service Agency, Tirana, Albania
Co-author(s) - Gëla Ilira, Archaeological Service Agency, Tirana, Albania
Keywords: Preventive archaeology
Presentation Preference - Poster

The Archaeological Service Agency is the first and only public institution in Albania charged to exercises authority over the rescue and preventive archaeology. Its activity is supported and coordinated by the Albanian Legislation, with the law “On Cultural Heritage” (2003).

The archaeological resource management as elsewhere in Europe after the review of the European Convention for the Protection of the Archaeological Heritage (1992), has drastically changed the whole system of the archaeological heritage management in Albania. The cultural heritage law of 2003 was amended further in 2006, 2008, 2009, 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 reappearance sometimes may only represent the beginning of a long evaluation process to be finalized with the establishment of a new archaeological site that requires protection as the prerequisites of the law article 25. 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 organization) and by the Rescue Archaeology Section (abolished with the establishment of ASA) affiliated with the Institute of Cultural Monuments. Since 2008, ASA have followed the procedure for 9 archaeological chance finds.

The village of Krahës is situated in the district of Tepeleq (Albania). Two graves were discovered occasionally during agricultural works by a farmer who informed the local authorities (Regional Division of National Culture, Gjirokastra).

The archaeological excavation results. The preliminary study of the archaeological material and method of construction, dates both graves around cent. 3 – 2 B.C. During the excavation process the team (ASA and RDNC Gjirokastra) conducted a survey around the area measuring approximately 3.5 hectares. A high intensity of finds (tiles, bricks, pottery shreds and some rubble wall) 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 1.5 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, pottery, transport containers, utensils and pottery coated with bitumen. The relative chronology based on the above material indicates three periods of occupation for Krahës: Hellenistic, Roman and Late Antiquity.

TH2-07 Abstract 15
CONPRA (Contributing to the Preventive Archaeology: Innovativeness, Development and Presentation)
Author - Prof. Novaković, Predrag, University of Ljubljana, Faculty of Arts, Ljubljana, Slovenia (Presenting author)
Co-author(s) - Zacher, Jan, Via magna s.r.i., Vrutely, Slovakia
Co-author(s) - Tastil, Renad, University of Belgrade, Belgrade, Serbia
Co-author(s) - Gu, Lukáš, TerraVerita s.r.o., Prague, Czech Republic
Keywords: development-led research, non-invasive archaeology, Preventive archaeology
Presentation Preference - Poster

TH2-07 Abstract 16
From 3D models to 2D documentation: Implementation of 3D models in archaeological documentation
Author - Joncic, Nanad, Faculty of Philosophy – University of Belgrade, Belgrade, Serbia (Presenting author)
Keywords: 3D scanner, Archaeological documentation, Preventive archaeology
Presentation Preference - Poster

Despite the fact that the law has not been changed for years, the workload in preventive archaeology is constantly growing. More investment leads to a growing number of excavations, and consequently to the growing number of small finds to be documented.

Motivated by the needs for fast and accurate documentation, we developed a new system for documenting finds from preventive archaeology excavations.

In comparison to the traditional way of documenting archaeological artifacts that is represented by technical drawing and photography 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 project 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.

Since 1990 major social, economic, conceptual, and technological changes greatly affected heritage sector in former ‘Eastern Europe’, and heritage labour market in particular. In this sector, previously fully dominated by public institutions, gradually emerged forms of private enterprises. SMEs and similar, which increasingly provided services needed for protection and management of heritage. Here, among heritage related discipline, it was archaeology which took the leading role in developing new forms of entrepreneurial practices. The major boost for this process and transformation of the roles came from intensive development which generated large quantities of development driven archaeological research in the framework of heritage protection and management. Non-invasive archaeology, in two recent decades, greatly benefitted from the development of ICT and other digital technologies. These technologies (combined with new concepts of preventive archaeology) had major impact on economy in archaeological heritage sector, providing a set of new and highly efficient tools for facing the scientific and business challenges. Moreover, not only that ICT and other digital technologies provided cost-efficient tools, they also boosted development of new kinds or archaeological research and manipulation with large data sets.

Four partners from Slovakia, Czech republic, Slovenia and Serbia (2 SMEs: VIA MAGNA s.r.o. TerraVerita, and 2 Departments of Archaeology from the universities of Ljubljana and Belgrade) joined in the project CONPRA (Industry-Academia Partnerships and Pathways; FP7-PEOPLE-2012-IAPP) with the principal aim of developing and disseminating recent concepts, methods and technologies adapted to the conditions of development driven archaeological research (3D scanning and computer 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.
MANAGEMENT OF ARCHAEOLOGICAL SITES IN TURKEY: PROSPECTS AND FUTURE

Friday, 2 September 2016, 14:00-16:00
Faculty of History, Room 217

Author - Bouissou-Khan, Ditier, METU/OTU Yerlesim Arkeolojisi Anabilim Dalı, University College London, London, Unfäd Kingdom (Presenting author)
Co-author(s) - Prof. Erciyas, Deniz Burcu, METU/OTU 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 • Participation management • Impact assessment of archaeological projects • Rural development • Local/regional development.

In this session it is proposed to ask participants to consider the shortcomings in the management of archaeological sites by archaeologists involved in Turkish archaeology. We hope to argue for a greater need for structured organisation and involvement in the management process. The session envisage to place a special focus on archaeologists and sites directors involved in field archaeology in Turkey: their involvement not only as stake holder on the management of archaeological site during the field seasons but also pre- and post-excavations and survey. The aim of this session would be to create awareness for the needs for site management for archaeologists in association with local authorities. It is also hoped that cross-fertilisation between archaeologists and heritage managers would lead to fruitful exchanges on the variety of processes and methods for managing archaeological sites. The session organisers hope to attract participation to the session from Turkish and international archaeologists and practitioners concretely involved in archaeological field work in Turkey. The ambition is to select the best papers to be published in a specially edited volume of CMAS Journal (Conservation and Management of Archaeological Sites).

The call for paper proposal for the session shall target work conducted at key sites such as Sagalassos, Aspendos, Nemrut Dağ and Pergamon, but shall not be limited to it. Junior and up-coming archaeologists as well as more established scholars shall be given the opportunity to confront their ideas and experiences, from a national and international perspective.

TH2-09 Abstract 01

Archaeology for Management: New Cycle of Archaeological Research at Ani

Author - Assat. Prof. Dr. Aktüre, Zeynep, Izmir Institute of Technology, Izmir, Turkey (Presenting author)
Co-author(s) - Bayram, Fahrelnasr, 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 for an “Ani school” of medieval Armenian architecture. While part of the excavated material has been preserved in the Museum of Antiquities of Ani and later in the History Museum of Armenia in Yerevan, several of the documented monuments were later devastated in wars, earthquakes and by vandalism.

After the establishment of the Republic of Turkey, sporadic excavations in the oldest-dating settlement layers and remnants 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. Devoted of later settlement, Ani currently stands as an exemplary relic historic city of the medieval period that consist almost all the building types of its region, including rock-cut caves and passages, however in an active seismic zone and a harsh continental climate.

This proposal aims to share the efforts, in the past two decades, towards the protection of this highly vulnerable heritage property, since the inclusion of Ani’s Cathedral in the inaugural watch list of the World Heritage Fund in 1998. International restoration and conservation activities undertaken at the site since then have involved several non-governmental organizations that provided expert and funding support. Urgency interventions have followed the recommendations of an advisory committee of experts from the Middle East Technical University (METU) of Ankara, established in 2006 by Turkey’s Ministry of Culture and Tourism. The third cycle of archaeological research that has started in 2011 follows these priorities, in context excavations around the monuments subject to urgent measures, instead of an independent research programme.

The Ministry also initiated a site management plan for Ani, through a participatory process that was pioneering in Turkey when it first started by two capacity building workshops in 2009 and 2010. Priorities in the plan include visitor management and sustainable development of the Ocaklı village at the entrance to the site. This vision recently officiallyised by the approval of the plan in view of Ani’s nomination for the UNESCO World Heritage List. These priorities extend responsibilities of the excavation director beyond the archaeological site, requiring additional management skills to train archaeologists normally acquire during their professional education and career, involving active collaboration with international bodies such as the Armenian institutions in Yerevan, international NGOs and researchers who have contributed in the on-going urgency interventions, local and central administrations as well as local communities.

The proposed paper aims to offer a working ground to exchange of experience on these and complementary topics around the case of Ani.

TH2-09 Abstract 02

Elaiussa Sebaste: safeguarding & valorization of a south-eastern Anatolia archaeological site

Author - Prof. Equini, Eugenia, Sapienza Universita di Roma, Rome, Italy (Presenting author)

Co-author(s) - Dr. Balossi Restelli, Francesca, Sapienza University of Rome, Rome, Italy (Presenting author)

Keywords: Elaiussa Sebaste, safeguarding, valorisation

Presentation Preference - Oral

During the archaeological research that has been carried out on a continued basis since 1996 at Elaiussa Sebaste in the South Eastern coastal part of Turkey, extensive restoration activities were realised on all of the structures brought to light to assure the conservation and safeguarding of the site’s archaeological heritage. These interventions have achieved in arresting the deterioration of the site and the impounding real estate speculation while allowing to open three monumental complexes to the public (theater, agora and proto-byzantine palace) with the setting out of visitor’s paths with view points offering 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 realized in collaboration with the Local and Regional Administrations that will allow to enhance in a sustainable way the extraordinary cultural heritage of this area of Turkey. This project must impose the indispensable town planning bonds in order to protect the precious archaeological and physical landscape of Elaiussa from new building constructions in sensitive areas and from illegal dumping.

At present 4 different itineraries have been designed - on the basis also of interviews to visitors of various nationalities - of which the 1st concerns the necropolis, one of the most spectacular burial complexes in Turkey due to the good state of conservation, the monumentality and the richness of the funerary buildings.

The valorisation project of the Necropolis road between Elaiussa and the near ancient city of Korykos (modern Kişladağ) was started during the 2015 campaign with bush clearing and careful cleaning carried out by the Mersin and Erdemli Belediyes. The results that have been obtained so far are very promising for the pursuing of the program to extend the visitor’s itineraries and permanence.

The 2nd itinerary is to be in the Public Quarter: the 3rd will concern the structures investigated on the promontory which is the most difficult to implement due to the morphology and extension of the terrain, the 4th will be related to the Temple area on the hill dominating the site of Elaiussa Sebaste.

The complete implementation of this program with the realization of the infrastructure necessary for the valorisation of this archaeological area will favour the development of sustainable tourism that will become an important part of the community’s cultural heritage and economic growth.

TH2-09 Abstract 03

Protecting and communicating Arslantepe: work in progress to save and narrate an early state centre

Author - Dr. Balossi Restelli, Francesca, Sapienza University of Rome, Rome, Italy (Presenting author)
Co-author(s) - Frangipane, Marcela, Sapienza University of Rome, Rome, Italy
Co-author(s) - Tuna, Ayşin, 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 1981 and has yielded unprecedented data and finds concerning various periods of its history, but mostly that of primary state formation (end of the IV millennium BCE). An early palatial structure still standing and in excellent state of preservation is the main testament left by this system and is today unique in its kind worldwide. For this reason an open air museum has been designed by the Italian Archaeological Expedition and inaugurated in 2011. Since then the site is officially open to the public and local awareness has increased significantly; in 2015 a
TH2-09 Abstract 04
Multiple layers and multiple players: management practices and archaeological conservation in Turkey
Author - Öz, B. Nilgün, Istanbul, Turkey (Presenting author)
Keywords: archaeological conservation, collaboration and inter-disciplinarity, management
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 long-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.

TH2-10 Abstract 01
Management of large archaeological projects in a competitive environment: the French case
Author - Dr. Depaepe, Pascal, INRAP, Amiens, France (Presenting author)
Co-author(s) - Kerouanton, Isabelle, INRAP, Poitiers, France
Co-author(s) - Iliaux, Gilles, INRAP, Amiens, France
Co-author(s) - Talon, Marc, INRAP, Amiens, France
Keywords: Major Development Projects, Preventive Archaeology, Public/Commercial Archaeology
Presentation Preference - Oral

In 2001, following the ratification of the Malta Convention (1995), France adopted a legislative system, entrusting the realization of archaeological evaluations and excavations to public service bodies. However, following a political change in 2003, excavations were opened up to private companies and even though after several years of implementation the system now seems fully established, it is still challenging. One of the specificities of developer funded archaeology in France is its involvement in major development projects: motorways, railways, canals, industrial estates, etc., which raises questions on how archaeologists handle these major archaeological projects in a competitive environment, the organization put in place, how results are disseminated to the scientific community and what type of cultural enhancement is presented to the general public?

These issues will be addressed via two large archaeological projects: the high-speed rail line between Tours and Bordeaux and the Canal Seine-Nord Europe. Methodological proposals will also be presented.

TH2-10 Abstract 04
AFTER 1990: A TURNING POINT IN THE GUIDING PRINCIPLES OF RESCUE EXCAVATIONS AND ITS IMPACT ON SCIENTIFIC RESEARCH
Thursday, 1 September 2016, 09:00-13:00
Faculty of Philology, Room SP2
Author - Depaepe, Pascal, INRAP, Amiens, France (Presenting author)
Co-author(s) - Enginovatou, Asya, Institute of archaeology, Academy of Sciences, Moscow, Russian Federation
Co-author(s) - Staüble, Harald, Landesamt für Archäologie, Dresden, Germany
Keywords: Cultural heritage, Rescue archaeology, Scientific research
Presentation Preference - Workshop

Not only has the European Charter for the Protection and Management of the Archaeological heritage (commonly called the Valetta Convention) been written in 1992, but many countries especially in East-Europe and Russia changed their Heritage Laws after 1990 as well. Nowadays most European countries have a more or less strong legislation about archaeology and cultural heritage.

The aim of this session is to discuss about changes in archaeology before and after 1990, regarding both the contribution (or not) of rescue archaeology to the scientific researches and the links with the academic archaeology. Rescue archaeology is now, in Europe, certainly the main source of archaeological data.

Factual descriptions based on archaeological projects of what has changed in different countries since 1990 in the sphere of rescue archaeology will be promoted, and especially these topics:

- How has the financing of Rescue Archaeology changed?
- How have the methods of Rescue Archaeology changed? What new methods are available?
- What are the numbers of archaeologists working in the rescue archaeology sector in each country, and how is their work organized and/or regulated?
- Has new legislation appeared to control rescue archaeology works in protecting heritage sites, and is this legislation truly new, or simply a reworking of existing laws?
- Has the professional relationship changed between those working in ‘academic’ archaeology, and those working in preservation or rescue archaeology?
- Has the quality, volume, or sector (for example roads, gas lines etc) of rescue archaeology works changed significantly since 1990?

TH2-10 Abstract 01
Management of large archaeological projects in a competitive environment: the French case
Author - Dr. Depaepe, Pascal, INRAP, Amiens, France (Presenting author)
Co-author(s) - Kerouanton, Isabelle, INRAP, Poitiers, France
Co-author(s) - Iliaux, Gilles, INRAP, Amiens, France
Co-author(s) - Talon, Marc, INRAP, Amiens, France
Keywords: Major Development Projects, Preventive Archaeology, Public/Commercial Archaeology
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Managing the archaeological heritage

Hora, Czech Republic

Co-author(s) - v.v.i., Institute of Archaeology of CAS, Prague, Czech Republic (Presenting author)

Keywords: archaeology, heritage, protection, management

Abstract

TH2-10 Abstract 02

Who pays? The developer or the owner?

Author - Vannooekken, J., Ministry of culture, Chalons-en-Champagne, France (Presenting author)

Keywords: developer, financing, owner

Presentation Preference - Oral

Since 1990, most European countries have introduced the "polluter pays" principle in preventive archaeology. According to the Valetta (Malta) convention, the financing of the archaeology should be integrated in the (big) public and private works and in practice, developers are funding all, or most, of the archaeology.

However, recent evolutions are completely undermining one of the basic principles of the Valetta convention. As big public and private works are getting rare in North-Western Europe, preventive archaeology is more and more about small and medium projects. Developers, and their banks which are providing money for the projects, negotiate contracts with the owners, stipulating that the presence of archaeological sites modifies these contracts. In France, these types of contracts are now very common. They indicate that the costs of excavation should be deducted from the cost of the plot of land.

In this way, the polluter pays principle is in fact replaced by the "owner pays" principle. This is not just a theoretical change but has important consequences. One of these concerns rural areas where excavations are getting rare as the cost of land is less than the price of excavations. More generally, excavations tend to concentrate where the land cost is the highest.

TH2-10 Abstract 03

Excavating England: Development and developments in archaeological fieldwork since 1990

Author - Donnelly, University of Oxford, Oxford, United Kingdom (Presenting author)

Keywords: big data, development-led fieldwork, 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 Domesday 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 behaviour of people in the distant past but also the more immediate and recent past: the nature of our data is clearly structured by modern archaeological practice. Our data shows that there are currently over 2400 unique archaeological organisations in England that have been involved in archaeological fieldwork since 1990. Although they range from commercial development-led companies, academic university departments to charity groups and volunteer organisations, the vast majority of these fieldwork investigations occur as part of the development and planning framework, within the context of a commercial system. The nature of proposed development, from aggregate extraction quarry sites, major road and rail infrastructure schemes and large scale housing development sites to smaller urban infilling and localised development schemes, clearly shapes both the design of the associated archaeological investigation and the resultant data. Archaeological fieldwork can range from massive landscape scale studies to constrained ‘keyhole’ investigation schemes and can be undertaken by large national companies or small ‘sole trader’ individuals. Examining how English archaeology has changed since 1990 and the advent of PPG 16 provides interesting insights into modern day archaeological practice and the relationship between legislation and the quality and quantity of archaeological data that has been produced.

This paper will explore how modern development has created and influenced development-led archaeology in England and how this influence has an underlying structuring effect upon the resultant English archaeological record.

TH2-10 Abstract 04

Archaeology and the Medieval Towns of Norway - before and after 1990

Author - Johansen, Lise-Marie Bye, Norwegian Institute for Cultural Heritage Research (NIKU), Oslo, Norway (Presenting author)

Keywords: managing cultural heritage, Rescue archaeology, scientific research

Presentation Preference - Oral

The aim of this presentation is to discuss the changes in management of the medieval towns in Norway, and its impact on archaeological excavations and scientific research.

Norway has a strong legislation regarding archaeology and cultural heritage. The Cultural Heritage Act states that all remains older than the Reformation (1537) are automatically protected. The medieval towns, with their large areas of thick occupation deposits and building remains, are being regarded as a single monument. Norwegian Directorate for Cultural Heritage is the agent responsible for giving permission to remove archaeological remains. The costs involved in investigating automatically protected monuments or sites are paid by the initiative of the project.

Until 1990 the Norwegian Directorate for Cultural Heritage had permanent excavation offices established in the most important medieval towns. Norwegian Institute for Cultural Heritage Research (NIKU) was created in 1994 as a split from the Directorate. One aim was to separate the research from the legislation unit. NIKU is an independent non-profit institution dedicated to preservation and sustainable management of cultural heritage. NIKU are responsible for excavations in medieval towns, churches, monasteries and fortified sites in Norway. Since 1994, more than 1,000 archaeological investigations of various sizes since have been carried out.

Archaeological excavations normally take place in connection with infrastructural development such as house building, road construction, laying cables and pipes, and installing tanks.

I suggest that the changes in the management of the medieval towns has had an impact on both the way the rescue excavations has been carried out and the scientific research. Until 1990 the research was focused on the medieval objects and the development of the towns, with the remains of houses, property boundaries and roads. Since 1990 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?

TH2-10 Abstract 05

Problems and solutions in large scale rescue excavations as seen from Saxony, former East-Germany

Author - Dr. Steuble, Harold, Heritage Office Saxony, Germany, Dresden, Germany (Presenting author)

Keywords: large scale rescue excavation, scientific outcome

Presentation Preference - Oral

According to its federal organisation and different heritage laws in Germany there are different heritage laws and also different practices in handling large scale rescue excavations. This regards all aspects of the topics to be discussed in the session, beginning with its organisation and financing, the methodological tools, the way to cope with the exponential increase of the archaeological material as well as with its presentation to the public in academia. There is even a different acceptance of these ‘hyperactivity’ as dictated by economic development and financing possibilities. But not all controversial debates are to be explained by different laws, traditions or by former socio-political borders.

Some of the differences and similarities will be presented from the point of view of Saxony, where regarding large scale rescue excavations big changes indeed took place during the early 1990s.

TH2-10 Abstract 06

Changing concept of large-scale excavations in the Czech Republic

Author - Dr. Šumberov, Institute of Archaeology of CAS, Prague, Czech Republic (Presenting author)

Co-author(s) - Pard, I., Institute of Archaeology of CAS, Prague, Prague, Czech Republic

Co-author(s) - Kujala, P., Institute of Archaeology of CAS, Prague, Prague, Czech Republic (Presenting author)

Keywords: large scale excavation, NeoLithic

Presentation Preference - Oral

This paper will explore how modern development has created and influenced development-led archaeology in England and how this influence has an underlying structuring effect upon the resultant English archaeological record.

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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-Stil, Agnieszka, Institute of Archaeology, University of Warsaw, Warsaw, Poland (Presenting author)
Keywords: UGAR, 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 methods 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 schemes projects covering large previously underdeveloped areas around the city of Warsaw, and are carried out by both local archaeological teams and units from other parts of the country. A common factor is almost exclusively commercial character of work, also an important background is created by the EU funds inspired boom in infrastructural investments, that will most likely be the largest event of such scale for many years to come. Data presented here is collected from all field reports and documentation collected on a basis of art. 31.3 of Polish Monument Care and Protection Act by Masovian Voivodship Heritage Officer Office for the period of 6 years (2009 - 2014). Article does not aim to discuss quality of such work or validity of chosen methods for the projects they have been used in – this is a matter for another study. Neither it is the authors aim to qualify, which method is more suitable for future use in the field archaeology in this region. This report should be treated as factual base for future discussion and an attempt to present the condition of Polish Archaeology in its certain aspect.

TH2-10 Abstract 08

Rescue Archaeology in Romania. Past and perspectives
Author - Magureanu, Andrei, Institute of Archaeology Vasile Parvan, Bucharest, Romania (Presenting author)
Co-author(s) - Dr. Magureanu, Andrei Mirea, Institute of Archaeology Vasile Parvan, Bucharest, Romania
Keywords: academic research, cultural management, rescue archaeology
Presentation Preference - Oral

1989 represented a turning point for Romania not only from political point of view, but from cultural management also. Romania, willing to be integrated into the European structures, adopted a brand new strategy regarding historical patrimony in concordance with European legislation and not only. From this point of view this was a dramatic change, suggesting that all is going into one direction fast. But one is theory and other is practice. Did the practice evolve into the same direction and with the same speed? Preventive archaeology or rescue archaeology was part of 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 to try to be just a pale reflection of it? Can this way of research be done in order to provide information for an academic archaelogy? 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, Aya, Institute of Archaeology of Russian Academy of Sciences, Moscow, Russian Federation (Presenting author)
Keywords: change in legislation, rescue archaeology, Russia
Presentation Preference - Oral

In Russia, the beginning of the 1990s was a turning point in the history of the nation. Immense changes took place in the political, social and legal spheres over an area which made up one-fifth of the world's landmass, with a population of over 170 million people (including the USSR, Bulgaria, Hungary, Poland, Czechoslovakia and other nations). The resulting shift to a 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 1996 the 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 reviewing 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-up deposits. Alongside this, the system by which the state funds scientific research has also changed. The proportion of rescue archaeology work conducted in the 2000s rose to above 80%, whereas it had only accounted for 20% in the 1990s. The development of private, including small business accounted for a considerable rise in the proportion of research being conducted by non-state firms involved in rescue archaeology – from 1% in the early 1990s, to 40% in 2012. This pace of change is intrinsically connected with the way in which the tax system operates in Russia. For state organisations (departments of the Russian Academy of Sciences, museums, universities) the system of taxation remains in place, in which there are no tax-breaks. However, in 2004 the Russian Federation brought in a tender scheme for a wide range of different services – including archaeological services. The primary consideration under which such tenders were won or lost, was the price quoted for their 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 Legislative 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 - Khvostov, 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 Matn; the Dnieper has its source nearby. The region turned into a historical crossroad, where the waters meet to the Baltic, the Black, and the Caspian Seas started. This region was popular among different population groups from the Paleolithic up to the Modern times. More than 7000 archeological monuments were discovered in the Tver Region. The objects of the archeological heritage are protected by law; as archeological monuments are considered to be state property. The Law states that financing the preventive (rescue, protective) archeological excavations is the obligation of the construction project investor. The protection system of the objects of the cultural heritage in the Tver Region appeared in 1990s. A small branch of the Cultural department of the Regional Government represented the state interests in those years. Five or six archeologists worked at the State Museum and the University. Small excavations and searching for the new archeological monuments were carried out. The events in the beginning of the 1990s in Russia led to the rise of economic activity, especially in construction. The new laws, which allowed commercial firms to conduct archeological works on equal basis with state organizations, were adopted. The first private archeological company - Tver Research and Restoration Archaeological Center – was established in 1990. After the year 2000 a new Department on State Protection of the Cultural Heritage in the Tver Region was founded with the aim to control the processes of archeological monuments protection (archeologists, historians, architects, lawyers, and managers work in the department). The State Department controls the execution of the federal law, which states...
that the preventive archeological excavations are obligatory on the sites where construction works are planned. The investors are ready to fund archeological works. But how does the law operate? It obviously operates through an archeologist. A rapid development of the construction business led to a great amount of preventive excavations. Tver State University solved a problem of the necessity of young archeologists training. About 10 state and commercial organizations dealing with the preservation of the archeological heritage work in the Tver Region nowadays. To summarize, there are two components of the archeological heritage protection system in Tver Region: Department on State Protection of the Cultural Heritage and archeological organizations. This system is effective. In the territory of the historical centre of Tver there were rescue excavations carried out on the territory of more than 400000 m². Archeological works were also carried out during the construction of the new roads, oil and gas pipelines. Heavily invested law is still prospects for further development - a collaboration with society and civic society organizations on the protection of the cultural heritage is necessary. It is crucial to realize the value of the archeological heritage as well as the importance of improving the scientific relevance of the preventive archeological works.

TH2-10 Abstract 11

“Amateur” archeology, legal or not?
The experience of a legislative practice in Russia

Author - Sapyrin, Irina, Institute of archaeology RAS, Moscow, Russian Federation
Co-author(s) - Zelentsova, Olga, Institute of archeology RAS, Moscow, Russian Federation (Presenting author)

Presentation Preference - Oral

Hoarding 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 locations. It took 20 years of a purposeful activity of the specialists in archeological heritage conservation for a society to realize the value of the losses of the pilage of archeological sites. In 2014 in Russia the federal act №315 was adopted, directed to the heritage rescue and consisted of the assets on criminal liability of “grave robbers” (up to 6 years). Apart from the asset of the encouragement of the persons doing the illegal excavations on the territory of archeological sites, this law contains norms and regulations new to the Russian legislative practice: about the territory of an object of an archeological heritage, about the state historical and cultural expert evaluation, about the main emphasis of the objects of an archeological heritage, about the state national objects’ register and the encouragement of the liability of archeologists. The report is about the analysis of the practice in the application of the federal act №315 for the last two years from the moment of its adoption.

TH2-10 Abstract 12

Moscow Monasteries: new stage of the archeological investigations (2003–2015)

Author - Beliaev, Leonid, Institute of Archaeology of RAS, Moscow, Russian Federation (Presenting author)
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Keywords: Middle Ages, Early Modern times, Moscow monasteries, new investigations

Presentation Preference - Oral

Archaeological investigations of the Zachatievsky Alekseevsky monastery (Dostchenka) that were started in 2003 laid the foundation for the new stage of the monasteries investigations which at the present time is recognized as one of the most important stages in the archeology of the Late Middle Ages and Early Modern times in Russia. Until the last third of the 20th century monasteries of the Moscow period haven’t been investigated by the archeological methods, the understanding of its structural peculiarities as archeological objects hasn’t been developed. Monasteries were regarded as too “late” objects.

In the late 1970s, the architects-restorers have learn to work with the monuments for the protection. The first large excavations in the monasteries were held in 1980s. For two decades (mid 1970s – mid 1990s) three key monasteries of Moscow monastic archeology – the Bogoyavlensky, Danilov and High-Petrovsky monasteries have been investigated and become standard objects. The monasteries of the Moscow Russia were understood as a new type of monuments.

In the beginning of the XXI century the situation has changed Cardinally. At the moment archeology is capable of solving large variety of problems first of all thanks to the development of the fundamental scientific research. Detailed examples of such works were provided by the investigations in Zachatievsky Alekseevsky, Sretensky, Novospassky, Novodevichy and Donskoy monasteries in Moscow and in the Troitse-Sergyeva Lavra and New Jerusalem monasteries (near Moscow).

The report will present the main results that have been achieved for the last 12 years works, in comparison with the investigations of the 1980s and 1990s.
Managing the archaeological heritage, Toulouse, France

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 underdeveloped 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 researchers) understand, experience and shape cultural landscapes. The work will focus on the cultural landscapes of Vindonissa and Salmonsburg in the UK, which represent two of the case study sites involved in the ‘Reassessing Europe’s first towns’ (REFT) project funded by the Joint Heritage European Programme’s (JHEP), Joint Heritage Initiative (JHI). The project represents co-operation between Durham University (UK), Bibracte EPPC (France) and Universidad Complutense de Madrid (Spain) alongside associate partners from outside archaeology (including wildlife management, farming, national parks and local government) from the three partner countries.

This project recognises that archaeological heritage is only one of many aspects of value – ecological, social, cultural and economic – in cultural landscapes and therefore needs to be part of an inclusive approach to developing landscape resilience. In order to develop better management strategies, the first stage of the project has been the analysis of current stakeholder perceptions of these cultural landscapes. This has been assessed through surveys, interviews and focus groups as well as initial engagement events. This paper examines how these cultural landscapes are used and understood. Using this analysis we explore how current knowledge can be increased whilst integrating existing landscape values into the management of cultural landscapes. As the project progresses, we look forward to seeing how such approaches can be used to develop engagement practices which will enhance cultural landscapes for greater mutual benefit to both landscapes and people.

TH2-11 Abstract 05
Living Archaeological Sites in Modern World: Discussions on Ancient Rural Heritage in Turkey
Author: Assist. Prof. Nayci, 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 communities to richest remains of village settlements which altogether constitute ‘ancient rural landscape heritage’ in the country. Turkey is one of the few remaining countries in the world where the culture is still being defined by the rural landscape. The last experience deals with the historical characterization of a local landscape, comparing material features with a perceptive reading linked with the establishment of a literary park in Western Turkey. All of these researches are a direct response to a question of ‘applied history’, the results of this work have been applied in environmental planning and in the historic characterization of the rural heritage, agro-silvo-pastoral landscapes and local products.

TH2-11 Abstract 06
Archaeology and landscape policies of rural areas. First results of a project in Southern Europe
Author: Dr. Stagno, Anna Maria, University of the Basque Country, Vitoria Gasteiz, Spain (Presenting author)
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 – in cultural landscapes and therefore needs to be part of an inclusive approach to developing landscape resilience. In order to develop better management strategies, the first stage of the project has been the analysis of current stakeholder perceptions of these cultural landscapes. This has been assessed through surveys, interviews and focus groups as well as initial engagement events. This paper examines how these cultural landscapes are used and understood. Using this analysis we explore how current knowledge can be increased whilst integrating existing landscape values into the management of cultural landscapes. As the project progresses, we look forward to seeing how such approaches can be used to develop engagement practices which will enhance cultural landscapes for greater mutual benefit to both landscapes and people.

TH2-11 Abstract 07
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Author: Assist. Prof. Nayci, Nida, Mersin University, Mersin, Turkey (Presenting author)
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Presentation Preference: Oral

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Across Europe rural areas are suffering, in term of loss of biodiversity, cultural landscapes and traditions, as the consequence of depopulation and increasing abandonment of their management. This problem is particularly evident in mountain areas, where the presence of common-lands and common access rights was crucial in shaping settlement patterns and rural landscapes, nowadays often protected as natural heritage.

This paper will consider, through presentation of the first results of a project focused on the archaeology of common-lands in Southern Europe, how archaeology could contribute to the creation of more synergies between research and management of mountain and rural areas.

The study is centered on the connection between social structures and related material evidences of local practices. The investigation pays specific attention to the practices of management and production of agro-forestry-pastoral resources. This approach has clearly shown, on one side, the historical dynamism of rural areas (and in particular of common-lands) for transformation of uses, organization and access rights and, on the other, the contribution of local knowledge to the construction and preservation of historical rural landscapes.

The paper will reflect on how archaeology and historical ecology could help to connect archaeological historical reconstruction and present management of landscapes. This link could offer new approaches to better define landscape management policies, based on local actors and local management of environmental resources, in the framework of actions for the conservation of rural areas as a part of European Cultural Heritage.

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**TH2-11 Abstract 07**

Cultural landscapes and territorial management: the case study of Madrid

**Author** - Dr. Ruiz Del Arbol Moro, María, Institute of History, CSIC, Madrid, Spain

**Co-author(s)** - Bastián Prats, Ines, Institute of History, CSIC, Madrid, Spain (Presenting author)

**Co-author(s)** - Garcia Hernandez, Maria, Universidad Complutense, Madrid, Spain

**Co-author(s)** - De La Calle Vaquero, Manuel, Universidad Complutense, Madrid, Spain

**Keywords:** Cultural Landscapes, Madrid, Tourism

**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, where the historical dynamic of cultural heritage is evident. 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 the research work done within the project “The heritage ensembles as touristic drives of the Community of Madrid. Problems and opportunities in a territorial perspective”. We want to contribute to the TH2-11 session with an approach to the case study of the archaeo-landscapes of the region of Madrid. 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”). As such, these have been identified and protected as exceptional examples of the human environment during the protection process. The community of Madrid 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 wants to address all these theoretical and methodological issues, using a case-study from the Western Alps: Val Sella Brignola, an upland valley (>1600 m asl) in the Cuneo province (Italy). The local land use practices are typical of the management of pastoral structures: dry-stone pastoral cabins (gaias) and cellars for cheese-making (sellas). Most of these gaias and sellas are still exploited by local herders. They were recorded via remote-sensing, fieldwork survey and historical maps. Archaeological excavations within the gaias of Sella Brignola suggested that this pastoral landscape dated back at least to the 16th century. Interviews with the local herder provided information on its function and use. The historical and ethnographic importance of the gaias of Sella Brignola, and the interest shown by policy-makers, members of local communities and tourists, 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.

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**TH2-11 Abstract 09**

Ethnoarchaeological heritage and cultural landscapes: a case-study from the Western Alps

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

**Keywords:** Ethnoarchaeology, Mountain landscapes, Tourism

**Presentation Preference - Oral**

Landscape management is a key-aspect of European policy. Cultural landscapes are described in the European Landscape Convention as bearers of important identity values, and their protection is expected to have a crucial impact on environmental sustainability (preservation of biodiversity and traditional products, prevention of soil erosion and geomorphological instability, etc.) and the safeguard of local communities. Ethnoarchaeology is placed at the core of this cultural and political framework. Ethnoarchaeological 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 Sella Brignola, an upland valley (>1600 m asl) in the Cuneo province (Italy). The local land use practices are typical of the management of pastoral structures: dry-stone pastoral cabins (gaias) and cellars for cheese-making (sellas). Most of these gaias and sellas are still exploited by local herders. They were recorded via remote-sensing, fieldwork survey and historical maps. Archaeological excavations within the gaias of Sella Brignola suggested that this pastoral landscape dated back at least to the 16th century. Interviews with the local herder provided information on its function and use. The historical and ethnographic importance of the gaias of Sella Brignola, and the interest shown by policy-makers, members of local communities and tourists, 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.

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**TH2-11 Abstract 10**

From the loss of a country, to the discovery of Archaeological Heritage: the modern story of Palestine

**Author** - Pintucci, Alessandro, University of Rome “LA Sapienza”, Roma, Italy (Presenting author)

**Keywords:** Heritage, Italy, Protection

**Presentation Preference - Oral**

Modern archaeological history of Palestine, city of ancient origin near Rome, started in the mid 1970s, when the first discoveries of tombs and archaeological materials were carried out in the territory; after a successful brackets linked to the promulgation in 1820 of one of the first laws of Italian protection, the Pacca’s Edict, in the second half of the 1900 s the city became a popular destination of Italien and foreign archeological travelers, in particular French and Germans, who toke systematic excavations, almost never scientific, to recover the precious fabric of the Collembola necropolis. This pirate-logic excavations and recovery of materials went on until the middle of ’300, when, after World War II, the city, like the whole of Lazio Region, was the scene of an uncontrollable speculation that put a strain on so-called Local city and in the countryside: in the 1960s Palestine 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, but also 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.

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**TH2-11 Abstract 08**

Through Rural Living Landscapes to Ethnoarchaeological Reflections of Salt in Eastern Romania

**Author** - PhD Student Augustelase, Mihaela, ‘Alexandru Ioan Cuza’ University of Iasi, Iasi, Romania (Presenting author)

**Keywords:** rural irnmaterial 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. Owners and local communities have managed 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.

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.
The siege of 's-Hertogenbosch in 1629 has been an important moment in the war between Catholic Spain and the Protestant Dutch Republic, and the arise of the Netherlands. 's-Hertogenbosch was the main Spanish base and a well-fortified city protected by an experienced Spanish garrison and by formidable water defences. The Dutch army led by Frederic Henry, prince of Orange, erected a defence and forefront of 40km around the town. It contained many dikes, trenches and ditches and several fortified cut through the historic lines of the siege at several locations. The excavations resulted in an intense cooperation between the municipality, the foundation and the archaeologists. The group was set frequently to exchange the knowledge of the moment. The location of the lines was recorded in a plan and modern map based on studies of historic maps. The seven excavations, varying between 200 and 20,000 square meters, gave new insight in the size, position and character of the lines. The archaeological results were integrated in the structural concepts for the landscape and community and the new archaeological characterization maps of the area were developed. The EAA-lecture will present the work of the foundation 'De Groene Vesting' as well as the results of the archaeological research of the lines of the Siege of 's-Hertogenbosch 1629. Example are given how archaeological and historic research can contribute to the development of the landscape around the town, how a foundation of volunteers from the local community can start and support local environmental concepts and how these plans are accepted by the municipalities, local community and several entrepreneurs. And also how commitment for many years results in great plans and ideas for the future.

The landscape of 's-Hertogenbosch, characterized by ruins of imposing monuments immersed in the vast countryside, doubtless preserves some of the richest cultural heritage of the ancient world; whose fascination has been celebrated by artists and writers since the Renaissance. For centuries these archaeological ruins have played the role of generic memories, beautiful fragments creating romantic panoramas, findings decontextualized from their environment, waiting to be looked at, dreamed of, but uninterpreted, except by specialists. The lack of reception of their historical value by the community has led to the abandonment of archaeological sites; and, therefore, the past has been seen as an immovable, faraway, meta-historical, idealized, unattainable reality that can only desperately store or regret, or even (as has been the case so far) simply be ignored. For these reasons, although since Napoleonic times different plans have envisaged Via Appia as becoming a great archaeological park between the Roman Forum and the Alban Hills, this idea has been threatened by private interests, such as housing construction. Even after the creation of the Park in 1988, the aims of which are, however, at most naturalistic, 95% of the area has remained in the hands of private entities. Moreover, the traditional approach of Italian institutions to the cultural heritage, based on the concept of preservation, constraint, and protection, has increased the gap between archaeology, on the one hand, and communities, on the other, over the past decades. In occasion of the decision taken by the Italian Ministry of Culture to finally transform this area into a national archaeological Park, the EAA-lecture will participate 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 inescapably public use of archaeological heritage, as which such must be defined, properly designed, and clearly explained to define new opportunities for building broader sustainability and legacy. In view of the future management of Appia Antica Park as an archaeological Park, inhabitants’ current aspirations and needs in the negotiation of what they feel to be “their own” past and culture with institutions and politicians will be examined. This political perspective will be used to develop a critical reading of the state of archaeology in the Park, illustrating practical examples of “active protection” of its landscapes by the citizens and identifying, in the changing process of the appropriation of the past, some key elements for the recovery of a shared memory. Hence, a public approach to the management of the Park will be proposed that could promote cultural growth, institutional acknowledgment and collaboration, and encourage the public to visit for the general public along permissive paths that did not interfere with the possible use of the site by wildlife.
Such an approach reflects the increasing desire to see archaeology as part of the wider historic environment, and reflects something of the reality of a site that was a Roman city for 500 years, but has been farm land for millennia, before and after the Romans.

TH2-11 Abstract 15
**Transformation and management of Historical Agrosystems in the Iberian Landscapes (THALES)**

**Author:** Dr. Sarabia, Julia, University of Alicante, Alicante, Spain (Presenting author)

**Presentation Preference:** Poster

The interest in the study of cultural landscapes has grown considerably in recent years. Several strategies have been developed in this field in Europe, marking it as a priority area of interest in Community policies as landscapes combine elements that affect both the cultural, environmental, economic identity and political heritage. In this context, we present the first results of THALES project (University of Alicante, Spain). The main challenge of the project is the combination of different methods to study the Iberian cultural landscapes for more advanced purposes: to contribute to a deeper understanding of the territory, in order to achieve development that respects the legacy of the past and its conservation. It is used a multidisciplinary approach (archaeology, geography, ethnography, soil science, agronomy), from a multi-scale (from local to European level) and with a diachronic perspective (from antiquity to the present day). In order to consider the various mechanisms of appropriation and transformation of the environment by the societies, the project focuses on the analysis of various types of cultural landscapes of the Iberian Peninsula, especially selected by the morphology of their agrarian systems: one of the most homogeneous expressions of the interaction between man and territory: 1) mountain landscapes of Sierra del Segura (Albacete) and Sierra de Altea (Alicante), characterized by small height villages of Islamic origin with an agro-pastoral 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 Hellín (Albacete), 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 farms, medieval fiefdoms, contemporary agrarian coloniae). Our study focuses on understanding how historical societies have occupied and administered this space, characterized by a shortage of water resources.

TH2-11 Abstract 16
**Landmarks and Landscape in the South Eastern Sicily**

**Author:** Dr. La Terra, Lia, Novara, Italy (Presenting author)

**Presentation Preference:** Poster

South-Eastern Sicily provides a privileged view for the analysis of the impact on the culture of “Sikels”, thanks to its huge variety of indigenous settlements dated to the Iron Age and concentrated around the Ionian coasts, which were early visited and occupied by Greek colonies. Nonetheless, the archaeological debates and researches have been always concentrated on 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 is emblematic to describe a shared situation for a considerable number of sites in the Region that are affected by lack of funds and absence of great managing plans. Investigating further the relationship between sites and their natural landscape might be very interesting. Prehistoric sites in Sicily (e.g. Pantalica, Cassibile, Thapsos, Monte Finocchito) are set on beautiful and breathable scenarios and the boundaries between archaeological landscape and natural-rural landscape are full of overlaps and possible links. This fact could suggest the idea of possible integrated landscapes where naturalistic tracks, rural traditions and archaeological sites are linked together in unified managing plan for preservation and tourism.

It is still detectable the complete harmonisation of archaeological remains into the rural landscape and the landmasks 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.
Managing the archaeological heritage

In archaeological studies of the past the humans were often viewed as being adults in the prime of life and inadvertently male. Females were introduced into archaeological discourses with the growth of gender archaeology during the 1980s and an explosion of research has been undertaken on the archaeology of children in the past decade. With some notable exceptions, however, the elderly are still largely invisible in archaeological narratives - even though ethnographic analogies demonstrate that 'elders' were often viewed with particular respect due to the perceived wisdom associated with their longevity. The inclusion of a wider spectrum of humanity within modern archaeological discourses has also resulted in an increase in studies of the human life course. Such studies stress the necessity of interconnecting the different stages of the life cycle to enable us to gain a better understanding of the life experiences of individuals at different times for the duration of their lives.

In this session we wish to focus on adult and child relationships and, in particular, evidence for the interaction of the young with the old. In the modern world grandparents are often key figures in their grandchildren's lives, but was this also the case in the past when people generally died at a much younger age than today? Is it possible to find evidence of such interactions in the funerary record, in the change in osteology 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.

GIVING NEW MEANING TO CULTURAL HERITAGE: THE OLD AND THE YOUNG IN PAST SOCIETIES

TH2-13

Abstract 01

Protect or perish: On the outlook for the young and the old in a museum’s collections

Author - Head of dep. Hoenegast, Mari, University of Stavanger, Stavanger, Norway (Presenting author)
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 childhood mortality was a fact of life in the past. More children were born than would ever reach adulthood and old age, putting a limit on the potential for interaction between the young and the old. Modern society has seen a change in this. Improvements in health, labour and welfare conditions have increased life spans and altered somewhat how we use our time. This population wave of older adults has spurred the growth of a new stage in the human life cycle on a global scale, in which older individuals have time and resources not previously available to them. This has changed the dynamic of the present, and increased the potential for interaction between the young and the old. It is possible to see such life-stage interconnections in something as simple as grandparents and grandchildren visiting museums together. None the less, museum outreach programs, activities and research communications rarely highlight this aspect of child-adult relationships in the archaeological narrative about the past.

The research program BEVARES (Biological Environmental and Archaeological Interdisciplinary Research on life course, 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 burial rituals together with the frequency of highly acidic soils in the region, are an impediment to the bio-archaeological analyses of the body and its treatment before and after death. As these conditions strongly influence the preservation of human bone, in particular the remains of inhumations, the possibility of gaining an understanding, both biological and social, of the interconnections of different stages in the human life cycle of the past are challenging.

TH2-13 Abstract 02

Mother-child relations in Early Bronze Age Lower Austria

Author - Mag. Dr. Rebay-Salzburg, Katharina, Austrian Academy of Sciences, Vienna, Austria (Presenting author)
Co-author(s) - Apelblat, 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 (Ingling, Untereisling and Wieselburg) with distinct burial practices. They differ in particular in terms of how bodies were placed and buried in relation to each other. In this contribution we scrutinise the archaeological record for evidence of mother-child relations. We will begin by presenting graves of pregnant women and graves of women and children buried together, in order to understand how such individuals were treated by their societies in death. We investigate the most likely ages for life-transitions such as first motherhood and menopause, as well as explore material markers of such transitions. Social responses to pregnancy, birth and early child rearing, as well as the link between women's reproductive status and social status in Bronze Age central Europe, give insights into the conceptualisation of motherhood in the Early Bronze Age in general, but also into the variability within three closely connected, yet different groups.

TH2-13 Abstract 03

Grandparents in the Bronze Age?

Author - Dr. Apelblat, Jo, University of Leicester, Leicester, United Kingdom (Presenting author)
Co-author(s) - Rebay-Salzburg, 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 later prehistoric contexts. Ethnographic studies show that grandparents take on an extremely wide range of roles worldwide, whether this is teaching knowledge and skills, providing childcare, or even taking on parental roles and titles. In many cases, grandparents play a critical role in the support and socialization of children. Understanding the 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 then use a case study from the Early Bronze Age Trsatestival in Austria to show how prehistoric mortuary data might inform us about grandparenting in the Early Bronze Age. The existence of a series of large, well excavated cemeteries from this area makes it possible to investigate how the idea of the ‘grandparent’ might have been constituted both in life and death. In addition, we will investigate the extent to which grandparents may have had a reciprocal role in caring for grandchildren who became incapacitated either physically or mentally through diseases of old age.

TH2-13 Abstract 04

The white-haired and the feeding bottle: Exploring children-elderly interactions in LBA Aegean

Author - Dr. Galiou, Chryssanthi, The University of Nottingham, Nottingham, United Kingdom (Presenting author)
Keywords: childhood, elderly, aging, Prehistoric, Aegean
Presentation Preference - Oral

Scholarship on age and gender in prehistoric Greece has taken an adult-centric approach (with focus placed mostly on young to middle-age men and women) and, as a result, two significant age groups - infants/children and the elderly – have been widely neglected. However, lacking a strong insight into attitudes towards these two age groups, archaeologists do not really harbour a concept of the whole span of life in the Greek-speaking and the non-Greek-speaking societies that developed in the Aegean region during the 2nd millennium BC. Making children and the elderly visible in the archaeological record, examining
their social roles, agency and interactions, 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 the elderly both at household level and in the context of a holistic analysis of the medieval to medieval period.

TH2-13 Abstract 05

Family constructions and adult-child relationships in the Ancient Greek Oikos

Author - Sommer, Maria, Skanderborg, Denmark (Presenting author)

Keywords: Adult-Child relationships, Ancient Greece, Childhood Archaeology

Presentation Preference - Oral

The presentation will focus on family constructions in the ancient Athenian oikos with special attention to children age 0-7 years. Research points to the fact that children in the ancient Greek household - the oikos - grew up in an extended family with multiple relationships with parents, grandparents, siblings, friends, slaves and caregivers. The theories of agepatriarchal/multiple caregiving are introduced to give insight to the complex world of children and their peers in the ancient Greek oikos.

This research has been published in: Sommer, M. & Sommer, D. (2019). Care, Play and Socialization in Ancient Africa - A Developmental Childhood Archaeological Approach (DK: Aarhus University Press).

TH2-13 Abstract 06

Circle of Life? Aspects on youth and old age in Viking Age and Medieval Scandinavia

Author - PhD Mejsholm, Lotta, Uppsala, Sweden (Presenting author)

Keywords: Age construction, Burials, Viking Age

Presentation Preference - Oral

In Viking Scandinavian society, people were to a high extent defined and commemorated by their deeds. The productive, freeborn, preferably male, adult formed a societal norm, to which children, slaves, outcasts, unproductive elders and "others" were contrasted. Consequently, and as a result of contemporary academic paradigm, children, and elderly has often been tagged as "invisible" in the records available. Nothing could be more wrong.

In this paper, the sphere of children and elderly in Viking Age and Medieval Scandinavia is explored, as a specifically culturally and socially defined construction, contrasted to the normative adulthood, as displayed in textual and archaeological records. In medieval provincial law codes, a clear distinction between man slaughter (killing an equal, a free adult man) and killing children or elderly people, unable to defend themselves, is made. In case of the latter, the killer was charged with a significantly more severe penalty. The defenslessness of these household dependents is expressed in terms of limited capabilities, which, is argued, is a relevant definition also in academic discussion.

In the burials records from Late Viking Age and Early Middle Age, graves of elderly, impaired, sick people and children in many cases differ from those of the productive adults. One specific phenomenon is approached in this paper, namely the use of amber beads ascribed. Amber has been used as protective agent in Viking Age, i.e. as amulets attached to swords. A similar understanding could be used considering the burial arrangements for elderly and young. Characterised by a state of dependence and limited capabilities, but also specific legal and magic protection, the young and the old seem to represent a distinct social category within the household. Likewise evident, the youngest family and household members, the unbaptized and newborn infants, were yet to enter this specific sphere.

Is it possible that this correspondence between age identity of the young and the old represent a Viking Age cyclic view of life? Perhaps so, but there might be reasons not to simplify our interpretation of the complex eschatology interacting with reality in Viking Age society.

TH2-13 Abstract 07

The old and the young in the Icelandic early Christian household cemetery

Author - Zoea, 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-AD1100. The graves within the cemeteries differ from the sparse archaeological burial record in that they are all inclusive, i.e. include babies 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 infant burials and relatively large number of "older" individuals. The Icelandic sagas rarely mention children, and the old hand not to be in viewed in a favourable light. By looking at the osteological data in conjunction with spatial burial analysis a more detailed picture emerges providing information on the possibility of three different groups and the role and perception of the young and the aged within the medieval household. This paper discusses how this unique material can add to the predominantly philological and historical discussion on the nature, makeup and social interactions of the medieval Icelandic household. It also touches on how the data may be used to create a fruitful discourse on how the "traditional" Icelandic household is presented and disseminated at a rural heritage museum. By comparing and contrasting the medieval bioarchaeological material and the historical/archaeological research pertaining to the museum's collections and exhibitions, a new light may be thrown on historically "inconspicuous" social groups such as the aged and the young, irrespective of time periods.

TH2-13 Abstract 08

Interpreting Multiple Interments in Irish Medieval Burial Grounds

Author - Dr. Murphy, Eileen, Queen's University Belfast, Crumlin, Northern Ireland, United Kingdom (Presenting author)

Keywords: funerary archaeology, relationships, skeletal remains

Presentation Preference - Oral

Burials that contain the remains of two, three or even larger numbers of individuals are occasionally discovered during excavations of medieval Christian burial grounds in Ireland. In the majority of cases the remains are those of neonatal infants - perhaps indicative of a multiple birth - in which the infants did not survive, while other examples may comprise the burial of two or more adults. In other instances a full-term foetus remains within the mother's abdominal region and clearly died prior to delivery. Cases also arise in which a neonate has been interred with an adult female, and it seems likely that many of these may represent cases where both a mother and her baby had died shortly after delivery. Other examples have been discovered in which an adult male was buried with an infant or an older child who was buried with an adult. This paper examines the role of multiple burials derived from medieval burial grounds in Ireland. Drawing upon information gleaned from oral history and contemporary historical sources attempts will be made to proffer possible scenarios to account for such burial configurations and to explore the nature of the potential relationships apparent within these various interments.

TH2-13 Abstract 09

Infants and elders: a bioarchaeological investigation of a Reform Church in Hungarian Transylvania

Author - Dr. Bethard, Jonathan, Boston University, Boston, United States of America (Presenting author)

Co-author(s) - Osterholtz, Anna, Mississippi State University, Starkville, United States of America

Co-author(s) - Nyaradi, Zsolt, Haaz Reszo Muzeum, Szekelyudvarhely, Romania

Co-author(s) - Dr. Mejsholm, Lotta, Uppsala, Sweden

Keywords: bioarchaeology, Reform Church, Transylvania

Presentation Preference - Oral

Bioarchaeologists have added a great deal to what is known about past peoples from numerous time periods and geographical periods. Recent contributions to the field have pushed scholarship in exciting new directions thanks to theoretical and methodological frameworks which include both the youngest and oldest members of society. Bioarchaeologists are now exploring questions related to both infants and the invisible elderly; however, few archaeological contexts present scenarios where both cohorts have been recovered together. Indeed, few scholars have addressed questions related to the interactions of people who lived at the extreme of the human lifespan, as these contexts seem to have alluded bioarchaeologists until now. In this talk, a unique mortuary context from an excavation at a Reform Church in Hungarian Transylvania will be discussed. In 2007 archaeologists participating in a salvage excavation recovered remains of 70 individuals buried beneath the floor of a Reform Church in the community of Távoltás (Teleac), Romania. The majority of these individuals are dated to the 17th century and do not appear to have survived long after birth. In addition to the neonatal individuals, the remains of an elderly female individual were recovered from the same stratigraphic context. In this talk, the relationship between these individuals will be explored and tied to a growing body of literature investigating the archaeology of the Reformation.

TH2-13 Abstract 03

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

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TH2-13 Abstract 10

The search for the elderly: using osteological data to divide and join age identity

Author - Peacock, Sabine, Bradford, United Kingdom (Presenting author)
Co-author(s) - Maaranen, Nina, University of Bradford, Bradford, United Kingdom

Keywords: age identity, elderly, old age

Presentation Preference - Poster

Inquiries into age identity have only recently received attention, despite the recognition of gender identity in archaeology. Particularly elderly individuals are often ignored or treated with the assumption of a universal experience of old age. Traditional age estimation methods have failed to provide more accurate estimates to aid in the identification of aged skeletons. Individuals of ≥5 years are often lumped together, ignoring any potential social differentiations in the later stages of life course. In this study, the Transition Analysis has been utilised 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. Older 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 is also an important aspect of these women's identity. Other forms of identity are highly important in gauging age differences and relationships between young and old. Age only becomes visible through the growing, gendered or diseased body as a medium in the social experience of age. The archaeological interpretation of osteological data shows that Wetwang Slack age groups have various relationships to one another depending on sex, health or even affected body location. This trial of age estimate, sex affiliation and disease state 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.

TH2-13 Abstract 11

Detecting the elderly - Exploring age using Transition Analysis

Author - Maaranen, Nina, Helsinki, Finland (Presenting author)
Co-author(s) - Buckberry, Jo, University of Bradford, Bradford, United Kingdom

Keywords: Adult age-at-death estimation, Life history, Transition Analysis

Presentation Preference - Poster

The absence of elderly in research is not simply a question of attitudes but of methodological limitations. 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 assemblage collection, held at the Finnish Museum of Natural History, was tested using Transition Analysis, the Buckberry-Chamberlin auricular surface method and the Suchey-Brooks pubic symphysis 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 lied between ages circa 40 and 70, as could be expected due to individual variation, but age ranges 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.
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 fields to present their programs and resources to a local community in an interactive and engaging manner. Through the fair, the partnering organizations presented activities that combined the excitement of discovery with sound archaeological thinking; emphasized the idea that archaeological discoveries are resources that help us better understand how people lived in the past and how human societies and communities functioned; developed, and grew; and informed attendees about archaeology and cultural heritage by having them participate in hands-on activities, by observing demonstrations of ancient technologies; and by talking to the experts presenting these various programs. Since 2001, the AIA has organized 23 more archaeological fairs and informed thousands of people through this popular outreach activity. The overall aims of the archaeological fairs are to promote a greater public understanding of archaeology, raise awareness of local archaeological resources, and bring together to promote archaeological organizations from various areas of the United States and around the world. The AIA fair model was developed through feedback cycles that include evaluation, data analysis, reflection, and trial and error, how it evolved, and how it is spreading to other groups around the world. To date, 28 AIA local societies have hosted fairs and the popularity of this program as an outreach event is increasing among other archaeological organizations across the USA as well as in Belgium, Canada, Colombia, the Czech Republic, Iran, and Myanmar. This growth in popularity and implementation presents us with unique opportunities to collect and reflect upon data essential to conducting archaeological outreach around the globe.

TH2-14 Abstract 04
The “archaeological path” in the interdisciplinary research in Polish Jurassic Highland

Author - MA Majerek, Magdalena, Nicolaus Copernicus University Torun Poland, Torun, Poland (Presenting author)
Co-author(s) - PHD Lawrowicz, Olga, University of Lodz, Lodz, Poland
Keywords: archaeology XIX-XX century, interdisciplinary research, places of memory and forgetfulness
Presentation Preference - Oral

The project, called Places of memory and forgetfulness, is an interdisciplinary research in northern areas of the Polish Jurassic Highland, which involves carrying out research in areas that can provide input to multifaceted cognition of the history, cultural reality, social climate, local family memory, the heritage of generations, and contemporary identity of the inhabitants of the northern part of the Polish Jurassic Highland. In a series of five communes: Janów, Leleń, Miłów, Olsztyn, Przyrów. The project adopts an interdisciplinary perspective to contemporary topics of modern cultural anthropology, and refers to the new trend in archaeology focused on the study of modern times (XIX-XX centuries). Reflection these two disciplines is supplemented and verified through the knowledge of local history and the history of art. The project distinguished three complementary research path: anthropological, archaeological, historical/archival and a common path. Cultural anthropologists use the photographs, written materials, archives, documents and available publications. For them, the source of knowledge of 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 particular are material elements of culture capable to confirm, deny or modify the knowledge of the past emanating from collected stories. Archaeological diagnosis was divided into two stages: reconnaissance and non-invasive research (including aerial survey). In the first stage of the archaeological diagnosis, archaeologists investigate the available source base and makes an initial reconnaissance of the municipality. Then dig objects (places), which have been proposed for research by anthropologists, into three categories: A - objects studied non-invasive methods, which does not require detailed documentation; B - objects studied non-invasive methods, requiring accurate documentation; C - objects studied non-invasive methods, requiring accurate documentation, subjected to additional investigation using a metal detector, drill and survey trenches. Established in the course of archaeological field research documentation (ie. the description card of places, photographs, drawings, movable monuments: artifacts and objects 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,Vuosa, The National Board of Antiquities, Helsinki, Finland (Presenting author)
Keywords: Local involvement, Media, Tourism
Presentation Preference - Oral

In June 1996 paleolithic stone tool was found in Susiluola-cave in western Finland. As the first known paleolithic site in Scandinavia it received plenty of attention in national media. Soon after the first find was revealed and reported in media, the site was visited by thousands of people and local economics was boosted by the visitors. Tourism flourished. Hats, t-shirts, food, 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 meantime there was a growing debate among archaeologists if the finds in the site was paleolithic or not, it was also accustomed 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 case this will lead to fruitful co-operation between archaeologists, local officials, entrepreneurs and public. It is also possible, that overenthusiastic start can lead to very disappointing end for all parties involved.

TH2-14 Abstract 06
My Home Ground - past and present

Author - Hjel Madsen, Lene, Museum standerberg, Standerberg, Denmark (Presenting author)
Co-author(s) - Dissing, Nina Bangsto, Municipality of Standerberg, Standerberg, Denmark
Co-author(s) - Purup, Marianne, Visit Standerberg, Ry, Denmark
Keywords: Art, Ownership, Storytelling
Presentation Preference - Oral

Escape is a concept that adds energy and historical context to newly developed suburban sites. When an excavation site has been “emptied” for historical data by the archaeologists and the area has been developed for modern life, it is important to tell the unique story of the place to newcomers as well as the people who already live around the site. This can be done in many ways. Our experience is that bringing in Art into the process lifts the story-telling- and a work of art as well as the presence of an artist at Work - result in increased local communication and also make the site a point of interest for tourists. The concept eScape combines art, archaeology, past and present and creates and communicates art on sites with strong archaeological evidence and thousands of years of human history. Pictures, paintings, collages and installations, combined with the scientific excavations. Specialists in Tourism, Art and Archaeology work together and combine the three on equal terms with the participation of locals and children. Escape makes a crucial difference from non-participation to ownership.

TH2-14 Abstract 07
Giving is having! Everybody is winning

Author - Archeologist Lesell, Kreetta, Pirkanmaa Provincial museum, Tampere, Finland (Presenting author)
Co-author(s) - Moininen, Ulla, Pirkanmaa Provincial museum, Tampere, Finland
Co-author(s) - Adel, Vadim, Pirkanmaa Provincial museum, Tampere, Finland
Keywords: cooperation, local people, openness
Presentation Preference - Oral

A warning example from Finland

The project is implemented under the National Programme for the Development of Humanities funded by the Ministry of Science and Higher Education in Poland.
Pirkannaa 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. Pirkannaa 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 Nebra-disc, are acknowledged by the wide public. In the case of more mundane finds this rarely ever occurs.

Today, the internet offers an easy and growing platform for rapid exchange of archaeological artefacts, the sheer volume of sales making it hard to keep track of newly advertised finds and sales. Thousands of archaeological artefacts are daily presented through mediums such as ‘treasure hunter’ internet platforms, advertised and sold online through outlets and sold through licensed auction houses.

The reaction of archaeologists has been to largely ignore this market. But the volume of finds entering the market reached already the point where we must begin to address the lack of knowledge, and to what degree our legitimate archaeological find corpus is any longer truly representative, and whether it alone remains valid for future research.

What can museums do to prevent illicit trading, archaeological excavations and trafficking? The reaction of archaeologists has been to largely ignore this market. But the volume of finds entering the market reached already the point where we must begin to address the lack of knowledge, and to what degree our legitimate archaeological find corpus is any longer truly representative, and whether it alone remains valid for future research.

We will focus in particular on how to:
- prevent and limit trafficking and selling of cultural heritage in Europe (especially trafficking of antiquities from the Near and Middle East);
- reduce illegal excavations in Europe;
- develop strategies for a common European legal basis on the protection of archaeological sites;
- Furthermore, we want to discuss an official statement for the EAA concerning illicit trafficking of antiquities.

Presentation Preference - Round table

Illicit trafficking of cultural heritage: different strategies to fight it

Saturday, 3 September 2016, 11:30-13:00
Faculty of History, Room 329

Author - Domiter, Ozren, Archaeological museum in Zagreb, Zagreb, Croatia (Presenting author)
Co-author(s) - Jelić, Vesna, Archaeological museum in Zagreb, Zagreb, Croatia
Co-author(s) - van der Laan, Constance, Universite Montpellier, Montpellier, France
Co-author(s) - Stos-Galek, Dora, University of Zagreb, Zagreb, Croatia
Co-author(s) - Szymanowski, Małgorzata, University of Warsaw, Warsaw, Poland
Co-author(s) - Šologna, Daniele, University of Padua, Padua, Italy

Keywords: illicit trafficking, acquisition policy

Presentation Preference - Oral

The legislation of the Republic of Croatia allows for the sale of individual archaeological finds or entire collections to museums, if the seller can prove the origin of the cultural good in the sense of family legacy or heritage. In practice, the easily obtainable confirmation of a notary on the origin of the good is the only thing required to prove the legality of such possession and to enable such sales.

The Archaeological museum in Zagreb possesses a certain amount of finds acquired in this way and which have a ‘questionable’ origin, and, as the parent institution, it works on entire collections which were subsequently seized from the same collectors which could, only a few years back, make legal trade with the Museum and were legally protected by the aforementioned notary confirmation on family heritage.

What can museums do to prevent illicit trading, archaeological excavations and trafficking?

It is understandable that archaeological museums cannot change the legislation, but their social role is to point out legislative flaws, and I feel that they should individually label collectors outside the law, sellers and malicious metal detector users by highlighting finds obtained in this way in permanent exhibitions and publications, just like they highlight well-intentioned donors. But this is only a cosmetic touch up.

Illicit trafficking of cultural heritage: different strategies to fight it

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Faculty of History, Room 329

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The systematic and inspiring raising of social awareness through the educational (equally pedagogy and andragogy) museum function about the flaws of decontextualized archaeological material and the inessential (non-material) value of archaeological heritage can certainly be 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 legislation 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 non-involvement of such a policy not only prevents, but encourages sale of archaeological finds and secret and non-expert excavations which result in individual decontextualized finds acquired/received by the museums with public funds.

A policy on collecting written through a consensus in the archaeological profession could deter all potential malicious collectors, not leaving room for them to manipulate ‘family heritage’ and, on the other hand, should not discourage well-intended donors and legal possessors to give their finds over to museums. A high-quality and publically available collection policy of archaeological museums, made in cooperation with legal experts, is a key step in preventing illicit behavior regarding archaeological heritage, and is a strong appeal to state legislature to redefine the legal framework for such activities. I hope to share my experience and specific proposals for how to win this fight by participating at this round table.

TH2-16 Abstract 02
Illicit trafficking of archaeological heritage in Croatian post-war and transitional context
Author - Curator Dmč, Ivan, Archæological 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 (but not enough) 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 wave 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 number of objects have been found but only a small portion ended up in museum collections while the pieces actually 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 archaeologists. In addition to cases of illegal metal detecting along the Croatian coastal area, there is a large problem with the looting of ancient shipwrecks in which a large number of artifacts, mainly amphorae, are placed on the illegal market. Similarly to most post-communist societies in Central and Eastern Europe, the transitional period in Croatia has also created a framework for a new social elite to emerge, and their social status is often confirmed with high-end art collections that sometimes include archaeological objects. There have been cases of high-ranking civil servants in whose possession illegally acquired artifacts have been found. In the last few years, some progress has been made in the legal sanctioning of individual dealers, with several confiscated collections and filed criminal charges.

TH2-16 Abstract 03
Can local people preserve cultural heritage?
Author - Munawar, Nour A., University of Amsterdam, Amsterdam, Netherlands (Presenting author)
Keywords: Conflict, Cultural Heritage Under Threat, Local People
Presentation Preference - Oral
Cultural heritage has fallen under the threat of being damaged due to armed conflicts, and destruction has increasingly become a major part of daily news all over the world. This phenomenon is not limited to specific geographical areas, but it includes various countries as much as it contains different ways and tools of destruction such as looting, bombing, illegal excavations, occupation of armies, and illicit trade. In response to these disgraceful actions, procedures have been taken to protect cultural heritage from being damaged. However, the preservation process cannot be done individually, but it has to be through institutional order. As it is well-known, governments are the main responsible stakeholder of preserving cultural heritage - as they are representing the people and protecting their properties especially in times of conflict. Local people have been considered as one of the most important stakeholders of cultural heritage.

In the meanwhile, local populations are not able to preserve cultural heritage without theoretical overviews, practical information or even being informed about the value of their heritage. Hence, the necessity of creating a combination of benefits among the different stakeholders became an urgent necessity.

The ongoing armed conflict in Syria and Iraq has progressively damaged numerous of cultural heritage sites, especially in the cities of Aleppo – Syria and Mosul – Iraq. The escalated violence did not avoid the museums, immovable and movable sites and even intangible cultural heritage was either damaged or completely demolished.

In this paper, the author is going to present samples of cultural heritage destruction in Syria and Iraq. Also, he will present a plan to increase the awareness of local people – as one of the stakeholders -in a way that helps to protect cultural heritage under threat.

TH2-16 Abstract 04
Metal Detecting on Dutch WWII conflict sites
Author - Ma Van der Schriek, Max, Vrije Universiteit Amsterdam, Amsterdam, Netherlands (Presenting author)
Keywords: Conflict Archaeology, Illegal excavations, Metal detecting, Illicit trafficking of Cultural Heritage
Presentation Preference - Oral
Dutch academic interest in the heritage of World War II (WWII) has been limited until recently. Attention for the subject is much greater in the wider community. Unfortunately, this interest is also expressed in many illegal searches and excavations. Metal detecting is a hobby that has been 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 fragmental 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. 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?

The formation of a universal national (or wider) acquisition policy in archaeological museums is the first preventive step. The non-involvement of such a policy not only prevents, but encourages sale of archaeological finds and secret and non-expert excavations which result in individual decontextualized finds acquired/received by the museums with public funds.

A policy on collecting written through a consensus in the archaeological profession could deter all potential malicious collectors, not leaving room for them to manipulate ‘family heritage’ and, on the other hand, should not discourage well-intended donors and legal possessors to give their finds over to museums. A high-quality and publically 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.
CLIMATE CHANGE AND HERITAGE: IMPACT AND STRATEGIES

Thursday, 1 September 2016, 14:00-18:30
Faculty of Philology, Room A7

Author: Bahl, Peter F; University at Buffalo, Buffalo, United States of America
Co-author(s): - Curtis, Caitlin; SUNY at Buffalo, Buffalo, United States of America
Co-author(s): - Vandrup Martens, Vibeke; Norwegian Institute for Cultural Heritage Research, Oslo, Norway
Co-author(s): - Karas, Eva; EARTH Integrated Archaeology B.V., Amsterdam, Netherlands
Co-author(s): - Dølen, Erlin; Riksantikvaren/Directorate for Cultural Heritage, Oslo, Norway
Co-author(s): - Johansen, Kristine; Riksantikvaren/Directorate for Cultural Heritage, Oslo, Norway

Presentation Preference: Oral

In situ preservation, mitigation, Northern Norway

Keywords: Oslo, Norway (Presenting author)

TH2-17 Abstract 02

Mitigating Climate Change Effects on Heritage Sites?

Author: - Dr. Martens, Vibeke Vandrup, NIKU - Norwegian Institute for Cultural Heritage Research, Oslo, Norway (Presenting author)

Keywords: in situ preservation, mitigation, Northern Norway

Presentation Preference: Oral

TH2-17 Abstract 02

Mitigating Climate Change Effects on Heritage Sites?

Author: - Dr. Martens, Vibeke Vandrup, NIKU - 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 and to try to preserve, 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 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, Erlin, Riksantikvaren/Directorate for Cultural Heritage, Oslo, Norway (Presenting author)

Co-author(s): - Johansen, Kristine; Riksantikvaren/Directorate for Cultural Heritage, Oslo, Norway

Keywords: Climate change, hydroelectricity plants, Skjerka watercourse

Presentation Preference: Oral

Climate change and increased demand for energy that is produced from sustainable sources are two challenges for archaeological heritage in Norway. On one hand, archaeological sites are subject to changes in flooding and rain and for sites located in reservoirs, changes in reservoir regulation schedules affect them in ways we so far have little or no information about. At the same time Norway is to be the supplier of green power to the rest of Europe, “Europe’s green heart.” This means that wind power plants are to be built in many places, mostly along the coast affecting not only cultural heritage sites, but also the landscape of which they are an integrated part. New hydroelectricity plants are being constructed, and old reservoirs are being expanded, flooding new areas and new sites, and challenging the preservation of sites that are located in the reservoir. The Skjerka watercourse in the South of Norway is subject to all of this, and we foresee many challenges for the preservation of the cultural heritage in the area.

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, Elinor; University of St Andrews, St Andrews, United Kingdom (Presenting author)

Co-author(s): - Dawson, Tom, University of St Andrews, St Andrews, United Kingdom

Co-author(s): - Hambly, Joanna; University of St Andrews, St Andrews, United Kingdom

Keywords: Coastal Archaeology, Erosion, Scotland

Presentation Preference: Oral

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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 and this database and classified near 1,000 sites as requiring attention.

Following prioritisation, SCAPE initiated the Scotland’s Coastal Heritage at Risk Project (SCHARP), which worked with members of the local community to update and enhance this data, focusing on high-priority sites. The citizen science approach created a network of volunteers to monitor vulnerable sites in the dynamic coastal zone. As monitoring alone does not save threatened sites, SCAPE has also worked with community groups to undertake action at locally valued sites. As preservation in situ is impractical or impossible in many coastal locations, the main aim is to rescue as much information as possible from these sites. A variety of strategies, from innovative digital recording and excavation to relocating and reconstructing sites have been deployed. The next project aim is to reference the updated data generated by SCHARP against the set of national research questions presented in the Scottish Archaeological Research Framework. This will ensure that research is undertaken at sites that will otherwise be destroyed, creating a ‘research / rescue’ framework. The potential of these vulnerable sites to answer research objectives will be shared with the international archaeological community.

A second aim is to map the updated data against the National Coastal Change Assessment. This project has plotted past change to the coastline and maps future susceptibility to erosion; and the result of the mapping exercise will inform future management of the coastal archaeological resource and highlight national and local priorities for further work.

This paper will present the impact of coastal processes on Scotland’s archaeological heritage, examine the methodologies employed to mitigate the sites threats face, consider the application of citizen science to the problem of coastal erosion and give case studies of some of the differing strategies used to preserve vulnerable coast sites by record.

TH2-17 Abstract 07
Submerging Heritage: Forecasting Climate Change Impacts to Site Preservation and Research Priorities
Author - Dr. Heilen, Michael, Statistical Research, Inc., Haymarket, United Kingdom (Presenting author)
Co-author(s) - Altschul, Jeffrey, Statistical Research, Inc., Tucson, United States of America (Presenting author)
Keywords: archaeological modeling, climate change, heritage management
Presentation Preference - Oral

TH2-17 Abstract 08
Sun, wind and rain: renewable and non-renewable resources in Wales
Author - Belford, Paul, Celfyddydau Archæological Trust, Welshpool, United Kingdom (Presenting author)
Keywords: heritage management, renewable resources, Wales
Presentation Preference - Oral

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.
Managing the archaeological heritage

In this presentation we will discuss known parameters of climate change and the possible impact on the cultural heritage in the Netherlands, such as more and heavier rainfall, alternating with periods of drought, temperature rise and a predicted sea level rise. Expected consequences of climate change are higher groundwater levels in general, but also very strong changes in water levels between drier and wetter periods. A temperature rise will give longer warm periods, which in turn will prolong the growing season and lengthen the decomposition process of organic material in the soil. Sea level rise can have effect on the salinity of the groundwater, which will result in a more rapid degradation of some of the archaeological data. Both sea level and intensifying peak flows of rivers, require precautions to be taken in the Netherlands. Therefore, the national Flood control program foresees a reinforcement of 700 km of levees within the presence of historic dike remnants. In addition, long the rivers, the shores are being made "natural" again to let the water flow over land to prevent uncontrolled flooding.

Both these engineering projects give us possibilities to study not only the adaption of man to changing environmental conditions through time, but they also give us a possibility to create different strategies for cultural heritage to be preserved for the future, in relation to expected climate changes. In the present name some examples will be presented.

TH2-17 Abstract 10
Sustainable energy versus sustainable heritage

The Netherlands

Author - Kars, Eva, EARTH Integrated Archaeology B.V., Amersfoort, Netherlands (Presenting author)
Co-author(s) - Van Rooijen, Cees, Cultural Heritage Agency of the Netherlands, Amersfoort, Netherlands
Co-author(s) - Berendsen, Ton, Fugro GeoServices B.V., Leidschendam, Netherlands
Keywords: In situ preservation, spatial planning, sustainability
Presentation Preference - Oral

The Netherlands is not only a small country but also a country with large storage of archaeological remains dating from all periods of prehistory. The Netherlands is also one of the most densely populated areas in the world which means that the archaeological heritage is under severe pressure and is always threatened.

It is a big challenge already to combine the exploration of infrastructure and other expansion and the in situ preservation of the archaeological heritage. One of the reasons of the implementation of the Renewable Energy Directive gives an even larger pressure and a challenge for the culture heritage sector. Now, the Renewable Energy Directive puts new pressures on the peripheral regions, both onshore and offshore.

A hot topic is the Dutch approach for combining all functions, characteristics, consistency into one subsoil spatial planning policy vision called STRONG. This emphasizes more and more the involvement of archaeology for the sustainable planning and vice versa.

In this presentation we will discuss how the combination of green energy, both offshore and onshore, will challenge the care for archaeological heritage within the Netherlands. What areas are we to explore? When analyzing the maps of exploration and the maps of the expectations of archaeology in this areas, will you see a conflict or synergy? What type of heritage is threatened and how is the threats in physical damage? And what is the scale of the threats?

But also are there possible advantages for the archaeological heritage? The combination of smart surveys and existing data could be beneficial for windfarming. The ambitions for onshore wind are high but the public opinion is low. Could the investigation of local archaeology have a positive effect on this public awareness for windfarming onshore?

Are there major consequences for archaeology in the EU directives or are we only busy with meaningless directives?

TH2-17 Abstract 11
Iced heritage. First World War heritage in frozen contexts in the Alps

Author - Dr. Nicolas, Franco, Ufficio beni archeologici - PAT, Trento, Italy (Presenting author)
Keywords: Global warming, WW Archaeology
Presentation Preference - Oral

Global warming is changing the alpine landscape. The retreating of the glaciers is a climatic emergency, but is taking with it a cultural emergency. The melting of ice is bringing to light evidence of the human presence at high altitudes from prehistory (Roman) to contemporary times (First World War structures and bodies). The sudden change in conditions has led to a genuine crisis for the recovery and conservation of finds. There is the further problem of the plundering of sites by collectors, who by illicitly removing finds cause the gradual destruction of the contexts. In this paper the case study of Punta Leme (3629 m a.s.l.) in the Ortles Cedeale group, Trentino region, Italy is presented. Punta Leme was one of the most important Austro-Hungarian positions of the entire Alpine front during the First World War, close to the frontier between the Kingdom of Italy and the Austro-Hungarian Empire. Archaeological excavations have led to the recovery of the artefacts and uncovered the whole context of the site of Punta Leme, characterised by the presence of a set of cableways. All the original structures freed from the ice and the material found there, have been relocated. In summer 2015 more than 2170 people visited the site during 55 days of opening.

TH2-17 Abstract 12
An integrated approach to sustainability: eco-cultural heritage practice at Aktopralık, Turkey

Author - Curtis, Caitlin, University at Buffalo, Buffalo, United States of America (Presenting author)
Keywords: community, heritage, sustainability
Presentation Preference - Oral

Community participation and sustainability are now widely recognized as crucial strategies in heritage practice. This paper thus presents a case study that utilizes an ethnographic methodology, including interviews with over 70 residents in Aktopralık, Bursa, Turkey, the local context of Neolithic-Chalcolithic Aktopralık Hılıyık. With the aim of trying to understand sustainability and heritage within the terms of the community, newly gained information can now aid in forging a symbiotic relationship between 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 waterbird population. However, Uluabat Gölü was also the initial site of industrial development in town over 30 years ago, with the first factories to open settling on the lake edge. These factories deposited waste in the lake, and with time, a place that had been a local source for recreation, fishing, and irrigation became nearly unusable.

In recent years, local government measures to more strictly regulate factory pollution, as well as efforts to clean the lake spearheaded by a local university, have begun to improve the water quality in the lake. However, at the same time, many note that the local government has not made a significant effort to maintain and develop the shore of the lake for the public or for visitors, with littering a continuing problem. Indeed, many locals noted the untapped potential of the lakeshore in Aktopralık for attracting tourists, especially considering the existing tourist attraction of Golyazı island just a few kilometers away at the center of the lake.

In southern and central Sweden there will probably be no more snow during winters, the sea level will rise up to one meter until year 2100, precipitation will increase with approximately 25%, there will be more torrential downpour, greater risk of flooding, less frost in the ground will make windfalls, damaging ancient remains in the forests.

Thus, as Uluabat lake is a valuable resource for local and national tourism, it has a significant potential to contribute to the regional economy and to support additional measures for its maintenance, protection, and management, there are clear pathways here toward the parallel dialogue of archaeological heritage. Similarly, the archaeological site has been threatened by factory development and can be a valuable community and touristic resource. There is therefore significant potential for archaeologists to engage in this broader dialogue of sustainability that includes environmental resources and community concerns. By including the lake in our management strategies, with such simple measures as a litter collection campaign by the excavation team, we can make headway in sustaining a valuable natural and community resource. Moreover, we can open up our site and the region to the benefits of not only heritage tourism but also ecotourism. Consequently, with an integrated approach to not only the sustainability of heritage, but also climate, environment, and community, we can make greater strides toward success in sustainability strategies overall.
PREVENTIVE ARCHAEOLOGY, SCIENTIFIC RESEARCH AND ECONOMIC DEVELOPMENT

Saturday, 3 September 2016, 09:00-18:30
Faculty of Philosophy, Room 214p

Author(s): Delmouli, Jean-Paul, Université de Paris I Sorbonne, Arles, France (Presenting author)
Coauthor(s): Guermandi, Maria-Pa, Istituto Beni Culturali - Regione Emilia Romagna, Bologna, Italy

Presentation Preference - Oral

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. Demouli, Jean-Paul, Université de Paris I, Paris, France (Presenting author)
Keywords: commercial competition, Preventive archaeology, scientific research

Presentation Preference - Oral

While the term heritage normally refers to the transmission of property within a family, the term Cultural or Archaeological heritage refers to a national or ethnic community. Although national identities in the modern sense of the term only appeared in the early 19th century, there have for some time been two different conceptions of the State in the Western world. In countries based on Roman law such as France, the State, even if it is disliked, is central to the conception of society. In “common law” Anglophone countries, and especially the USA, the State has never been completely legitimate. This view was further reinforced in the nineteenth-eighties through the domination of Milton Friedman’s free-market ideology and the Reagan and Thatcher governments. In a sense, there is no real society any more, only a juxtaposition of consumers, buying or not buying goods and services in a market controlled by an “invisible hand”.

As we know, the State was rediscovered in 2008, when the western banks had to be rescued. Yet this ideology also partly affected the conception of Heritage. Developers are not economic agents threatening our shared archaeological heritage, who should pay for excavation to conserve it. They become “clients” who chose between different producers, in this case the private companies doing archaeological excavation. This view has had disastrous consequences in terms of research, since many excavations carried out through Cultural Resource Management have never been studied or published. It also has ethical and political consequences for our conception of our common past. France offers a good (or sad) example of such an historical evolution, since commercial competition was introduced in archaeology in 2003.

TH2-19 Abstract 02
25 Years of Development-led Archaeology in England: Strengths, Weaknesses, Opportunities and Threats

Author: Trow, Steve, Historic England, Southampton, United Kingdom (Presenting author)
Keywords: Archaeology, Development-led, Planning

Presentation Preference - Oral


While the issuing of a piece of technical planning guidance may seem like limited cause for celebration, it did in fact mark a new era in the archaeology of the UK and far beyond. Beforehand “rescue archaeology” was funded by the UK’s central government: thereafter it became the responsibility of developers. It is estimated that, in the intervening period, some 75,000 archaeological investigations have been supported by this system, recording many thousands of archaeological sites that would otherwise have been destroyed by development, without record.

The quarter-century anniversary of this change provides an opportune moment to reflect on the changes that have been wrought in the intervening period. In terms of resources directed to the study of archaeology, the revolution in understanding that this has generated and the growth in professionalism in our discipline, the change in policy has been a major success. But it has also created challenges.

This paper will review the achievements of the last 25 years and the balance of benefit and problem that now faces the archaeological profession in England.

TH2-19 Abstract 03
Identifying research aims at the earliest stage of large development plans, first thoughts matter!

Author: Allan, Tim, Historic England, Northampton, United Kingdom (Presenting author)
Keywords: early assessment, major development, research priorities

Presentation Preference - Oral

‘Development led’ (preventive) archaeology is still regularly contrasted to ‘research archaeology’. In the UK the former is done largely by commercial organisations (contractors), the latter mainly by universities and community groups with public or charitable funds. This use of language takes a considerable shift in intent over recent years, from both archaeological curators and contractors, and considerable crossover with many contractors undertaking both commercial and not for profit projects.

The development of national and regional research assessments, agenda and strategies (e.g. in England ‘Regional Research Frameworks’) has sought to ground archaeological practice in an explicitly applied, evidence 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 government agencies and institutions; they have limited time and relationship capital to spend. To influence outcomes, key research questions must be identified early in process (especially concerning absence of knowledge). If an archaeological impact, in particular a setting impact, is to be mitigated or eliminated (or for a planning outcome influenced) both the affected historic asset’s significance and the impact must be understood. Focused research is required to understand these issues, their gravity and what might be done, and it is rarely tenable to raise them late in a project options and design process.

How can archaeological curators and contractors integrate research into large scale development projects and avoid slipping into mechanical processes which simply translate and transform remains to archive? We know what we ‘should do’ but require an understanding of practice and an articulation of the narrative in which our jobs are situated. Without being able to tell to ourselves the story of our role in the archaeological research process we can neither defend our position nor critically assess our success.

Where across complex landscapes with patchy existing information should archaeologists deploy their time and other people’s money and attention? This paper discusses the application of professional judgement and expertise to the identification of key research issues both within and outweigh 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.

TH2-19 Abstract 04
Trends in Scandinavian cultural heritage management in the 2010s

Author: Professor Hakon, Göteborg, University of Oslo, Oslo, Norway (Presenting author)
Keywords: development-led archaeology, Heritage management, Scandinavian models

Presentation Preference - Oral
25 years after the "Malta Convention", we need to come back to this text and make a debrief of the current situation: is the article 7 just applied? If it is the case, how do the operators of preventive archaeology do in Europe?

The issue underlay is that of the harmonization and the sharing of archaeological data. In that perspective, thinking the harmonization of the spatial data appears to be one of the answers: Archaeology is, above all, a spatial science and it seems thinkable to find a general agreement on the way of representing the spatial data. The issue of production, harmonization and management of archaeological data has become by now central, in relation to the huge diffusion of GIS and Web Mapping.

In the paper we aim to give a contribution toward the definition of a minimal spatial and archaeological value, useful to the production of archaeological cartography on a European scale.
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, throughout 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 which is a Federal State with significant autonomy within the 26 cantons and half-cantons which make up the country. Thus Switzerland can be considered as a “Tiny European Union” in the centre of Europe, making it an interesting case for comparative study.

Through this historic analysis we will see that preventive archaeology is the result of a continuous and irregular evolution of different practices and numerous processes. They come from different origins: methodology, science, technique, administration, politics and economics. Consequently, the practice of preventive archaeology has been planned through different organizational and political entities responsible for its applications. Therefore, preventive archaeology is an amorphous 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 recognise that the manner in which preventive archaeology is organised can be regularly re-negotiated within civil society so that it is adapted to the evolution of the research context and, last but not least, to our scientific ambitions.

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TH2-19 Abstract 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) - Co-author: Pandora, 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 cultural resources that may be affected by an undertaking involving the federal government. Section 110 of the Act further requires federal agencies to identify and manage heritage resources within their jurisdictions. A large and robust heritage resource management industry has developed in the United States around these requirements. The thousands of active cultural resource management firms are as a result of Section 106. The framework of the Act has resulted in tremendous strides of data, and in some cases spectacular research findings. Yet, the vast majority of projects are small and disconnected from larger research programs, with their purpose, location, schedule, and level of effort determined by development and other needs, rather than scientific research.

Moreover, project planning and management is often focused on reducing costs within a competitive environment. While many projects are largely compliance-driven, some organizations have managed to develop research-driven approaches that allow for cumulative research to be conducted within a preventive context. In this paper, we discuss our approach at Statistical Research to conducting research within two different regions of the United States – coastal southern California and the desert Papagoes of southern Arizona – by developing regional programs, accumulating data from numerous small projects to achieve appropriate samples and contexts for research, focusing on projects with strong research potential, developing analytical and database tools, cultivating research-oriented staff, and seeking, as a company, to address long-term research goals in the regions we investigate.

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TH2-19 Abstract 11

The system of organisation of Czech archaeology

Author - Mark, Jan, Institute of Archaeology of the CAS, Prague, v. v. i., Prague, Czech Republic (Presenting author)

Co-author(s) - Unger, Jiří, Institute of Archaeology of the CAS, Prague, v. v. i., Prague, Czech Republic

Keywords: Czech Republic, Legislation, Preventive Archaeology

Presentation Preference - Oral

The currently effective heritage law in the Czech Republic entered into force already in the year 1987. Even though the law was created in the environment of socialist state, it was designed in a very progressive way. Despite the fact that the law was not significantly revised since it had become effective it still fulfils the majority of obligations that the Czech Republic undertook to do by joining the Valetta convention in 2000.

However, lawmakers in the year 1987 cannot envision the fundamental political as well as social transformations that occurred in the Czech Republic two years later, in the year 1989. The changeover to a market economy as well as significant increase in building activities brought much higher demands on conducting rescue archaeological field works. This 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 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 - Querol, 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 being conducted in this context, and we developed a specific model (preventive archaeology) as a result of the proliferation of uses abuses of the “preventive archaeology” APA 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 an integrated strategy, i.e. a strategy (in an urban sense), including its archaeological potential, is the first and most important. 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 project) to establish Reserve Zones (“untouchables”) and Caution Areas (for interim protection of construction projects) in the territorial planning of European territories.

The implementation of this model will not only achieve a decrease in the number of archaeological rescue or emergency interventions, but will also allow to design archaeological research based on its knowledge, without it being the decision of the public or private civil work.
Today, the challenge is to implement the model more (there are some examples in Spain, but very few), and to improve it to include other kinds of measures such as mediation techniques in front of social conflicts with interventions or adequate interpretation systems for this type of archaeological heritage that usually is more difficult to spread than other archaeologies.

**TH2-19 Abstract 13**

Preventive archaeology from 2010 onwards in Hungary – legal background and the reality

**Author** - Bozóki-EMrey, Katalin, Government Office of Budapest Capital, Budapest, Hungary (Presenting author)

**Co-author(s)** - Vóthik, Katalin, Gyula Forster National Heritage and Asset Management Centre, Budapest, Hungary

**Keywords**: development-led excavations, legal system, reforms

**Presentation Preference** - Oral

Hungary has signed the Malta Convention among the first countries (1992), built the Convention’s main principles already into the first cultural heritage law (1997: CXL) issued after the political turn (1989), nonetheless the Convention itself just later (2000) became part of the national legislation. Preventive archaeology – in modern terms – appeared around the 1990s and quickly became the dominant way of excavating, the number of development-led excavations was the highest around 2006/2010. The history of this “evolution” from a few aspects was already discussed by archaeologists mainly in foreign publications, conferences (e.g. EPAC, EAC volumes, ACE project) – unfortunately such a debate is still missing on national level, the characteristic elements of this process, the special interest of the different actors have not yet been analysed. In this paper we focus on the period from about 2010 till now, the period that is characterised by a radical reorganisation of heritage administration under the aegis of the overall government-reform, the shutdown of the INRAP-like field service (established in 2007). The recent changes (including the accreditation of excavation institutions and firms) foster the building up a free-market like system in case of development-led large scale excavations; legal “reforms” were introduced in favour of better predictable excavations and investments and for the “benefit” of the citizen. We try to confront theory and practice to outline the problems that should be resolved.

**TH2-19 Abstract 14**

French preventive archaeology in a European context

**Author** - Salaas Rosenschein, Kai, French national institute for preventive archaeological research, Paris, France (Presenting author)

**Co-author(s)** - Pion, Patrick, French national institute for preventive archaeological research, Paris, France

**Keywords**: development-led, European, preventive

**Presentation Preference** - Oral

Since 2001 French state decided to create a national institute to lead preventive archaeology. With more than ten years of exercise, through crisis and political changes, the Institute evolved and learned from these changes. Looking across Europe, French model still looks singular both from is accomplishments and failures. This presentation, comparing European situations with the French one, consists of a critical analysis of the French example. From this base, it proposes some common lines to be discussed at a European level. Each of these lines seem to take us to a central starting point question: why is preventive archaeology done in our countries and how can we collectively answer this question?

**TH2-19 Abstract 15**

Is Preventive Archaeology viable in time of crisis?

**The Greek experience**

**Author** - Kotsakis, Konstantinos, Aristotle University Thessaloniki, Thessaloniki, Greece (Presenting author)

**Presentation Preference** - Oral

The paper presents the state of preventive archaeology in Greece within the context of the most serious economic and social crisis since the end of the Civil War in 1949. Archaeology in Greece is traditionally and legally closely involved in the State apparatus, a reality which is enhanced by the corporatism of the state archaeologists. However, the urgency of the economic crisis hitting Greece hard since 2009, and the recently added huge refugee crisis is putting a dangerous strain on archaeology. Is state archaeology going to survive the crisis?

**TH2-19 Abstract 16**

Is preventive archaeology compatible with scientific research?

**Author** - Dr. Deapaş, 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 - lead 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 2016 - reflects how far behind legislation is in general when it comes to archaeology. There is no specific legislation and archaeological practices are governed by directives that are highly ambiguous, when not downright conspiratorial, archaic, manifestly insufficient and ridiculously and pointlessly restrictive (e.g. the limitation of prior verification procedures to public works only, the only case in Europe). The drafts of the guidelines on preventive archaeology, which we have been waiting for since 2006, do not appear likely to fulfil 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 Superintendences.

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 serious 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 knowledge and personal interpretation. Modern archaeology has made great strides in adopting a more vigorous approach to the process of interpretation. Thus Specialists and technician capable of performing Geochemical, X-ray, Geological, Landscape and Environmental analysis are viewed with suspicion and are perceived as being expensive, confusing in the ambiguity, and perceived as costly and not commercially justifiable.

Commercial units want cheap labour, trained in a few cost effective techniques that lead to lower costs and higher profits based on archaeological methodology that would not have seemed out of place in the 1960’s.

This paper aims with the aid of a few case studies to show that this perspective is incorrect and in fact good and thoughtful application of scientific archaeological 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 whom doesn’t work but I will argue that a targeted environmental and scientific preliminary investigation will lead to a more cost effective and beneficial method of examining our historic environment to the benefit of all.

The presented data clearly show that the restructuring of archaeological heritage management in Austria since 2010 has lead to a considerable increase in archaeological measures taking place. Furthermore the quality of excavation documentations of archaeological personnel to each of the respective state departments has intensified the level of regional supervision and has shown positive effects. The concentration on core competences, the abandonment of direct excavation activity and the assignment of archaeological Department are covered. Special emphasis is placed on the rise of commercial archaeology as well as on the issues such as the current state of human resources and general tasks of the Federal Monuments Office’s Archaeological Department.

Preventive archaeology in Austria

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Co-author(s) - Dr. Steigberger, Eva, Bundesdenkmalamt, Krems, Austria
Keywords: heritage management, monument protection law, Austria
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 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 present dealt 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 led to a considerable increase in archaeological measures taken place. Furthermore the quality of excavation documentations and their data integrity has improved through the introduction of the “Guidelines for Archaeological Measures”.

Destination management of heritage sites and towns in Croatia

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Keywords: Archaeological tourism, Destination management, heritage sites
Presentation Preference - Oral

The paper focuses on the present state regarding integrated destination management of heritage sites and towns in Croatia, reviewing a number of recent attempts at broad-scale participative approach integrating needs, wishes and particularities of different stakeholders. In certain cases, the general collaborative framework introduced by a few key stakeholders in the circle including archaeologists, conservators, tourism specialists, local administrative units, civic sector and local community proved an excellent guiding light toward a common goal of integrated management aimed at sustainable development of archaeological sites as dynamic factors in the tourism business at local, regional and national levels. In certain other cases, in which these different voices were not fully heeded and particular interests took precedence, archaeological tourism as a practice often left much to be desired. The authors, directors of two major Croatian archaeological museums (in Zagreb and Pula respectively) draw on their experience in the project management of heritage attractions, with a view to contributing to the discussion towards creating European guidelines for archaeological tourism, as proposed by the session organizers.

Bridging the gap: archaeology in tourism at the Archaeological park Emona (Ljubljana, Slovenia)

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Keywords: archaeological heritage management, archaeological park management, 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’s ties on. As a product of specific context, tied to the idea of Antiquity and its heritage as civilizing and inherently understandable, and to Roman archaeology as elite oriented, it was less interesting for the general public, and gradually became obsolete and unknown even to the inhabitants of Ljubljana. During the project of renovation and revitalisation of the Archaeological park Emona in 2011-2012, carried out by the Museum and Galleries of Ljubljana, several key changes and improvements have been made. The primary goal of the project was to include...
the heritage of Emona into the life of modern Ljubljana, and to enable this, the renovation of infrastructure in the park was carried out, together with interpretative aids and public programmes.

As tourists were one of the weakest groups of our visitors, we designed a marketing plan with them in mind, and started to collaborate with the local tourist board, Tourism Ljubljana, and designed a tourist programme together. We also included local entrepreneurs and artists in some other programmes and workshops. Owing to these changes and endeavours, we had a 25% growth in foreign visitors to the Park. However, we did experience tensions and misunderstanding due to differences in understanding archaeological heritage as a source, in ways of exploiting it, and the scope and size of the possibilities. We think those conflicts and solutions employed make a good starting point for a debate, and a very useful experience for planning the development of Archaeological Park Emoana and similar enterprises in the future.

TH2-20 Abstract 03
Looking for archaeology in an official tourism sustainable method.

Examples from two Spanish villages

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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 experimented tested in several towns along all Europe.

This project tries to validate the utility of an official method to analyse sustainable tourism in towns. The work is coordinated by enterprise in urban regeneration and participatory processes who has tested this methodology in two villages with a rich cultural heritage: Castril de la Campana and Sigüenza (Castilla La Mancha).

As part of a strategy of collaboration between the University Madrid and an enterprise to introduce innovation and research, we have proposed and introduced some novelties to the official methodology. Specifically, we are trying to improve the role of cultural heritage to measure sustainability of these two touristic destinations. Unfortunately, in both the European and Spanish methodology archaeology or archaeological sites are highly overlooked. In contrast to this situation, the Spanish cases of study 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 - Haagenberg, Tom, Hazenberg Archeologica, 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. Besides the military fort six Roman shipwrecks are discovered. The ships represent the typical character of the Lower German Limes as a river frontier, built in wetland, serving as a main transport route connecting the Germanic and Gallic hinterland with the North Sea basin. For this reason the ships play a principal role in the tourist-oriented development of the Lower German Limes connected to the UNESCO nomination programme.

The ships were found on the estate Hooge Burch, now owned by Ipse de Bruggen, an institute for people with multiple disabilities. 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 Ipse de Bruggen decide to realise more interaction between clients and visitors on the Hooge Burch.

The ambitions of both the limes network and Ipse 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 center, partly run by people with mental and physical disabilities. Limes Visitor’s Centre NERGOM PVALLUM opened its doors at April 15th 2016.

TH2-20 Abstract 05
From the ground up: Experiencing Romania through excavations at Halmyris in the Danube Delta

Author - Harasac, Emily, Durham University, Durham, United Kingdom (Presenting author)

Keywords: Authenticity, Heritage, Volunteer

Presentation Preference - Oral

The concept of archaeological tourism, or tourism based on the experiencing of an ‘authentic’ past through the viewing of archaeological sites (Timothy and Boyd 2006), is a distinctly Western phenomenon derived from nationalist capitalism which encourages heritage consumption (Rowan and Baram 2004). There are obvious challenges in the display of heritage specifically for monetary profit, a practice which often silences alternative voices of the past (see e.g. Waitt 2000). This does not, however, negate the potential benefits for archaeological tourism, rather it gives us an opportunity for finding new ways of encouraging a more holistic cross-cultural interaction. This paper presents one potential good practice example—an ongoing project in Romania advocating for cultural awareness by encouraging a participatory version of archaeological tourism through field school attendance.

Since 2012 an international management team has run a not-for-profit archaeological field school at Halmyris, a Roman legionary fort in the Danube Delta. The costs for student volunteers are kept minimal and with an average of 25-30 participants each season we are able to independently finance the excavations and sustain the program. We do attract a number of undergraduates, MA students, and PhD students from archaeology and related disciplines; however, since 2014 we have had 10 volunteers who are decidedly atypical. Ranging from 54 years old to 77, and hailing from New Zealand, Australia, North America, France, and the UK we find our project decidedly enhanced by the presence of retired folk eager for new life experiences. They have chosen to help excavate a site which goes a step past comparatively passive tourism to what I term participatory archaeological tourism. By engaging directly with excavations at Halmyris this demographic is able to not only live alongside rural Danubian fishermen, but gain new skills and most importantly a newfound understanding of heritage display and the social context of the past. I believe this is one model which may be of use for other developing projects locked to finance excavation and engage alternative audiences. In this paper I will examine both the challenges and the benefits for the project in welcoming this demographic of field volunteers, and reflect on the unique experience of Romania they are able to gain through participatory archaeological tourism.


TH2-20 Abstract 06
Unexpected experiences

Author - Hjel-Madsen, Lene, Museum skanderborg, Skanderborg, Denmark (Presenting author)

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Keywords: Art, Co-creation, Cultural Tourism

Presentation Preference - Oral

Creating meaningful experiences for the general public should be the primary aim of cultural tourism. When securing quality in these meaningful experiences it is crucial to start cooperating with the specialists so that this side is also in cooperated in the project making.

Actually we choose to take the challenge one step further by creating a project that combines archaeology, art and tourism on equal terms.

The project is called eScape and can be seen as a concept that is all about combining art, archaeology, past and present. Creating and communicating art on sites with strong archaeological evidence in combination with the scientific archaeological excavations.

The location and the landscape is the raison d’être of the project- and locals as well as tourists are given the opportunity to experience landscape storytelling combined with world history interpreted by modern art.

eScape brings out art and cultural heritage “on location”, away from the walls of the museum, creating a phenomenological space where nature, art and cultural heritage meet and communicate with one another, giving visitors unique and unexpected experiences.
TH2-20 Abstract 07
A journey through time: sensory tourism in the context of archaeological museums in Poland

Author: Dr. Pawełta, 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-open exhibitions as "Following the traces of the European Identity of Dracovce", as well as innovative trends such as those as realised in the "World of the Slavs and Vikings" or "The Slav Myth". It is not a systematic analysis, but shows certain noticeable trends in archaeology museums: in the presentation of the artefacts, in educational projects, including the introduction of reconstructions, reenactments, museum lessons, etc. It also addresses the issue of a modern technology offering a visitor a different perspective on the confrontation with archaeology and monuments.

It also 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? Are the new ways of exhibiting and presenting knowledge about the past drawing society closer, encouraging aesthetic experiences with relics of the past, the discovery of ancestors and increasing scientific knowledge? Or do they turn attention away from the items on display? Finally, what is the real purpose of the "sensory" development of contemporary museums?

TH2-20 Abstract 08
Museums in Central Asia: The Role of Cultural Institutions in disseminating Information

Author: Dr. Jarosz, Katarzyna, University of Logistics, Wroclaw, 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, 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 those 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 lifeline 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 measures undertaken are to make the exhibited artefacts more attractive, or whether they are competing with it? Are the new ways of exhibiting and presenting knowledge about the past drawing society closer, encouraging aesthetic experiences with relics of the past, the discovery of ancestors and increasing scientific knowledge? Or do they turn attention away from the items on display? Finally, what is the real purpose of the “sensory” development of contemporary museums?

TH2-20 Abstract 09
One’s destination is never a place, but a new way of seeing things: Touring a Heritage trail

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Co-author(s): - Borrego Ruipérez, Cristina, University of Burgos, Burgos, Spain
Keywords: Cultural Landscape, Historical routes, Language learning
Presentation Preference - Oral

The aim of the paper is to present our investigation of the potential role of a historical route as a language learning and culture acquisition tool. The Route of the Blown Bridges refers to Wellington’s retreat in 1812 from Burgos to Portugal after the month long siege of Burgos had proved to be too tough a target. While retreating, and to avoid being trapped by the French army, Wellington ordered that several bridges on the Carrion, Pisuerga, Duero and Tormes rivers were blown. Through “the worst scrape I was ever in”, as Wellington put it, the allied army gained a moral dominance over the French not renouncing to it ever again.

We identify, categorize and analyze the route and its highlights in order to create materials which may serve as a means to gain a deeper sense of the Spanish culture and heritage. These materials will be used to foster this touristic route which may be useful to students interested in learning Spanish L2 while experiencing the country’s historical heritage.

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-Leon, our didactical 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

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Keywords: Perception and Interpretation, Tourism, World Heritage Site
Presentation Preference - Poster

Within the context of collaboration of the cultural heritage management research group of the Complutense University of Madrid and according to the interest awoken by the Archaeology and Tourism Working Party, we present this poster with the intention of making a first approach of how the touristic agencies operating on the Web treat the archaeological visit. Following the UNESCO criteria regarding the world’s regional division and the reasons for declaration, we selected the settlements recognized for their archaeological dimensions as World Heritage Sites in the European context and which are accessible to visit. Through a series of charts and quantitative analysis we are going to present which ones are the main references for the touristic industry when encouraging the visit and how much of that quantity is similar to the discourse transmitted by those who work in the research of these archaeological sites. The poster aims to show the differences or the confluences between the scientific discourses and those generated by the tourism sector so that proposals of improvement can be made for the social transfer of archaeology through these means and at the same time, improve the touristic experience related to the appreciation of the research efforts behind these places and that justify their conservation and opening to the public.

TH2-20 Abstract 06
Touring the Battlefield: The Route of the Blown Bridges

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Co-author(s): - Arroyo Martínez, Natalia, Universidad de Valladolid, Valladolid, Spain
Co-author(s): - Artiles Garcia, Natalia, Universidad de Valladolid, Valladolid, Spain
Keywords: Cultural Landscape, Historical routes, Language learning
Presentation Preference - Oral

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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.

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Managing the archaeological heritage

The research-presentation multidisciplinary approach - Symbiosis in Stari Grad, Croatia

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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 Stari Grad Tourist Board, the Stari Grad 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 Sr. 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, Velebit Nature Park, Archaeological museum in Zadar), as equal partners, in order to act in synergy to enrich the existing tourist offer of the Stari Grad 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 Stari Grad 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, wherever possible, fulfilled in a whole for the benefit of all included participants.

This synergetic, general-heritage and interinstitutional approach includes all three functions of heritage-related institutions (research, preservation and communication) for the overall benefit of the local community and society as a whole.

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TH2-21 Abstract 01
Sustainable Heritage and archaeology: a blessing or a curse?

Author: Dr. Andersson, Anna-Carin, University of Gothenburg, Gothenburg, Sweden (Presenting author)

Keywords: Archaeology, Heritage, sustainability

Presentation Preference: Oral

This aim of this short and reflexive presentation is to encourage to even more reflexivity. The paper has been encouraged after a vivid and constructive debate on the academia.edu site initiated by the session organisers. Many people within archaeology and heritage management have commented and given their experiential point of views on the matter of Sustainability. What is “Sustainable Archaeology”? Or even a Sustainable Heritage? Is it really a matter of Heritage? Who’s Heritage? Or is it a matter of how we can protect and ensure the survival of the discipline of archaeology for future generations? In various societal circumstances it is possible to come across the concept of Sustainability: “sustainable education”, “sustainable child-care”, “sustainable society”, “sustainable development”, etc. Who are the stakeholders that have initiated the 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?

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TH2-21 Abstract 02
The first step on the way to sustainability: understanding the structure of land development

Author: Vannookerke, Jan, Ministry of culture, Chalons-en-Champagne, France (Presenting author)

Keywords: Archaeology and Heritage on the Way to Sustainability, development, earthworks, sustainability

Presentation Preference: Oral
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 most destructive factors, far ahead industrial and linear (roads, etc.) works which are far less important. A lot of new types of land development, often linked with the green economy, are also important. Preventive archeology of this mass of small scale earthworks is something wholly different from archeology of large infrastructure works. It should be adapted at all levels, from the theoretical to the technical and administrative level. In the long term, its public impact and sustainability are however much better.

TH2-21 Abstract 03
An Archaeology of Stains. Sustainability and Responsibility in Facing Painful Heritage
Author - Zelenska, Anna, Institute of Archaeology and Ethnology of Polish Academy of Sciences, Warsaw, Poland (Presenting author)
Keywords: archaeology of recent past, painful heritage, Stains Black and White
Presentation Preference - Oral

While thinking about the archaeology’s capacity to endure at the time when it is facing as well old as new constraints together with requirements and pressure to ‘perform’ and to ‘be socially useful’, two aspects demand discussion and comparative studies: the actual participation and efficiency of archaeologists in ‘cultural heritage management’ and tackling (I) impact of archaeology on that, what is perceived as ‘the Heritage’ by the local and global communities. Unfortuntely, we are not the perfect one in taking into account social preferences. At least in Eastern Europe.

However, starting from what I have available, and treating symptoms as informative, I assume that it is worth to focus archaeological attention on the material remains of the XX Century. Some of them already became or soon will become the subjects of the archaeological studies. They are the creations of both the righteous (fair, legitimate etc.) and filthy (e.g. gory etc.) events. In general, the first category can be seen as recognised and widely described historically, while the second is still shrouded in uncertainties and unresolutions. It also induces growing public interest and can 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 archaeology, on which as the crucial can be seen the potential of archeology in exploring these ‘stains’ - within the recent past history. In other words I will try to present the merits - of archaeologists’ ability to deal reflectively and responsibly with the material dimensions of ‘stains’ as with the worth high attention phenomena of the ‘enduring materiality’ and - of the growing readiness of archaeologists to be socially useful when dealing with ‘the traces of the discarded’ or unspeakable. To do so, I will refer to the specified cases of archaeological inquiry from Poland. To exemplify some of the nuanced arguments, the outcomes of the ongoing project titled ‘Archaeological revival of memory of the Great War. Material remains of the life and death in trenches of the Eastern Front and the condition of the ever changing landscapes in the region of the Raewka 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” - “residual view”, “traceology view”, seem equally important as the still growing public needs for a “visible, visible, tangible, touchable past”. I will elaborate the reasons for which the Gadamerian question on the ways in which knowledge and its effects are affiliated remain central. I will also discuss why material remains, especially those excluded and those difficult to be grasped in words, situate archeology in position of the discipline necessary or and handy for the hardy from or with acquaintance with the enduring ‘stains’.  

TH2-21 Abstract 04
Contemporary archeology - a response to the crisis and social approach towards heritage
Author - PhD Kajda, Konelma, Univerzity im. Adama Mickiewicza w Poznaniu, Poznań, Poland (Presenting author)
Keywords: contemporary archeology, heritage, social expectations
Presentation Preference - Oral

Are we all archaeologists now? - the question asked by C. Holtorf (2015) in Journal of Contemporary Archeology clearly describes the expandability and transformation of what archaeology is thought to be today. It is no longer just a 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 archaeology 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 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 archaeology 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 archaeology and research questions which this field ask (here the Polish perspective will be especially stressed). Therefore, topics of the meaning and value of heritage in the contemporary world, as well as, social needs towards our discipline within the context of contemporary archaeology 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 paralysed research, universities were left without resources, scientists emigrated abroad and the archaeological market virtually disappeared by paralysing the construction boom. Although this fact has hurt the archaeological profession, in these seven years have also emerged process served as an opportunity for Sustainable Archaeology. Thus, the economic crisis led to a political crisis that has led to social movements claiming an active role in the promision of a cultural heritage as a tool for sustainable development. Politicans, 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 exceed 3 million people, with a culture that differentiates them from the rest of Spain. At both sites the Archaeological Heritage has a key role as a marker of identity and tourist resource.

Galicia is the country’s oldest population in Europe, it is one of the poorest and most deprived areas of Spain; its countryside and its industrial structure are disappearing and survives thanks to European subsidies. After decades of failed policies of sustainable rural development in these years of crisis local governments and civil society are the Community Archaeology a useful tool for the enhancement of Heritage. This reality has opened a new market for archaeologists of Galicia. Meanwhile, the Basque Country, who lived since the Industrial Revolution in the late nineteenth century, is the richest region of Spain. The political weight of Basque nationalism has resulted in the strengthening of public policies that encourage the development of local production. Basque politics supports research to enhance and 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 - Apen, Ruiz, Barcelona, Spain (Presenting author)
Co-author(s) - Pastor, Ana, Universitat de Barcelona, Barcelona, Spain
Keywords: heritage, methodology, public
Presentation Preference - Oral

In this presentation we discuss some methodological experiences carried out in Barcelona with the intention to study and better understand the interactions between archaeology, heritage and its public with the intention to provide a space of reflection about participatory research in the field of heritage and archaeology. Our main objective is to analyse and explore different methodologies that can allow us to draw up new participative and sustainable strategies for heritage management. Systematic

TH2-21 Abstract 07
"Daktylos: A voice for the windowless"
Author - Roldán, Héctor, University of the Basque Country, Vitoria-Gasteiz, Spain (Presenting author)
Co-author(s) - De Vicente, Beatriz, University of the Basque Country, Vitoria-Gasteiz, Spain
Keywords: Community Archaeology, Community based research, Social Change
Presentation Preference - Oral

The multi-annual project "Daktylos" (2002-2008) is the first of its kind in Spain, which applies the Community-based Research methodology to an archaeological site, the necropolis of Gomedo, in the municipality of Abadiño. Throughout this intervention we intended to achieve three objectives: (1) recovering the site from all kinds of overuse, (2) carrying out an inventory study of the archaeological remains, and (3) establishing a relationship with the local population in order to foster their participation in the project.

The results of this experiment are here presented, which emphasis the potential of this methodology as well as the different challenges it poses. We are convinced that this project has successfully opened the way for new strategies of heritage management, which are based on community participation, and that it is a model that can be replicated in other contexts. It is our hope that this project will serve as an example of how to successfully engage the local population in heritage management projects.  

TH2-21 Abstract 08
The Archaeology of Violence in the Basque Country: From a Conflict to a Debate
Author - Aguirre, Higinio, Vitoria-Gasteiz, Spain (Presenting author)
Co-author(s) - Olbina, Nils, University of the Basque Country, Vitoria-Gasteiz, Spain
Keywords: Community Archaeology, Community based research, Social Change
Presentation Preference - Oral

The Basque Country has a long and complex history, marked by political violence and social change. The Archaeology of Violence, as a field of study, has been shaped by the need to understand the impact of these events on society. The recent past, especially the Basque armed conflict, has left a lasting legacy, and the field of Archaeology of Violence has evolved over time to address these issues.

In this presentation, we will explore the development of the field of Archaeology of Violence in the Basque Country, focusing on how it has addressed the impact of political violence on society. We will discuss the various methodologies used in the field, including community-based research and participatory methodologies, and how they have been used to engage with the local community and to foster debate about the legacy of political violence.

The Basque Country has experienced significant changes over the past few decades, from the end of the armed conflict to the present day. The field of Archaeology of Violence has been a key player in this process, shaping the way in which society engages with its past. In this presentation, we will explore how the field has evolved and how it continues to shape the way in which society engages with its past.
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)
Co-author(s) - Edeso, Mikel, Sociedad de Ciencias Aranzadi, Donostia-San Sebastian, Spain
Keywords: archaeology, sustainable development, theory
Presentation Preference - Oral

In the last three decades, the realization that archaeologists have to engage in dialogue with the local communities is growing, and new fields such as Public Archaeology or Community Archaeology are establishing themselves as separate sub-fields of practice and theoretical reflection. At the same time, the current financial crisis (especially felt in southern Europe, but also in the Humanities and the Arts sector) forces us to find alternative and responsible ways to boost local development.

The main argument presented in this paper is that archaeology can contribute to sustainable local development, but it should do so as part of a theoretically informed, socially engaged and carefully researched multidisciplinary project which combines archaeology, history, ethnography and social theory. This can be achieved:
• If we investigate the social and political conditions within which attitudes to the past have been formed and within which notions of local, national, or world heritage have defined.
• If we engage with social problems in the present, and
• If we contribute to the formulation of a vision for responsible growth in the future, by means of a dialogue with the local communities and the policy makers responsible for the study and management of the archaeological heritage in the area.

The discussion will focus on Laconia, a region of southern Greece. The argument proceeds in four stages:
1. The exploration of local perceptions of the past by means of a programme of archaeological (visual) ethnography. Special attention is given to educational programmes for school children presented in the local museums and archaeological sites, as these play a formative role in the formation of local perceptions of archaeology and archaeologists.
2. A discussion of the main problems faced by the local communities, the endemic causes of exclusion and underdevelopment as well as the further deterioration during the current financial and political crisis.
3. The formulation of a vision for sustainable growth and for alternative forms of tourism (e.g. agrotourism, ecotourism, cultural tourism, etc.), and the need for the creation of collaborative structures which can unleash local creative potential and act as a platform for the exchange of ideas.
4. The discussion of shifting attitudes to the past both in relation to hegemonic discourse as shaped by classical scholarship, national and local ideological, but also in relation to folk culture (local legends and fairy tales) and recent influences such as film, comics, the souvenir industry and the internet.

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 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 play a formative role in the formation of local perceptions of archaeology and archaeologists.

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TH2-21 Abstract 08
Here I live - interpretations of the past present and future

Author - PhD Synnestvedt, Anita, University of Gothenburg, Gothenburg, Sweden (Presenting author)
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 suburb is considered one of the most troublesome within the city of Gothenburg. It is dominated by different groups of immigrants and there have been a lot of incidents of shooting and criminal activities in the area. There are also a high number of youngsters from this area that have joined ISIS. There is therefore a great need of supportive and positive actions and perspectives

To summarize, it will be argued that a sustainable future for the archaeological heritage is only possible if we understand the historical conditions of its formation, but also explore its potential to mobilize new forms of action and formulate new readings of the past.

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)
Co-author(s) - Hekman, Janin, University of Groningen, Groningen, Netherlands
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 improvement of knowledge for landscape management and protection of archaeological and natural heritage is a necessity. In this context, the Archaeological & Natural Heritage project (ANHer) focuses on increasing knowledge and skills for professionals working in the archaeological and natural heritage sectors in Europe. The project aims to fill a gap that is not covered by traditional forms of training. Within the project, six European partners develop a variety of integrated educational e-learning materials designed to treat important facets of both sectors. The project contributes to the development of improved methods and content of higher education and vocational training in the field of heritage. The digital method ensures that the ongoing changes that concern the protection and management of archaeological and natural heritage are connected with education that is useful and up-to-date. The online modules address the rapidly changing modes of protection and management for the archaeological and natural heritage sectors, as well as the significance of integrated heritage in spatial planning and regional development policies. This includes the role of built heritage in urban planning and local and regional heritage policies in Europe.

The basic principle is that through a better understanding of the importance of archaeological and natural heritage, for a variety of different environments, sustainable landscape management can be realised. This project aims to provide an organisational structure for continuous training and a technical infrastructure for blended learning that will benefit the various labour markets.

TH2-21 Abstract 10
Linking efforts towards a new vision: new learning methods in Heritage

Author - Dr. Cubas, Miriam, University of York, York, United Kingdom (Presenting author)
Co-author(s) - Edeso, Mikel, Sociedad de Ciencias Aranzadi, Donostia-San Sebastian, Spain
Keywords: Archaeology, heritage, vocational and educational training, Natural heritage
Presentation Preference - Poster

Contemporary thinking about heritage incorporates a wide range of realities with important economic consequences and which create new socio-economic relationships. Frequently, heritage management professionals are not familiar with 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 work. All newly produced didactic materials will be stored in an online Content Repository. Flexible content authored supporting 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 management.

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 prevailing issues of an integrated approach to conservation and management of archaeological and natural heritage and its impact upon planning policies and development. The e-learning modules will aim to improve the competence of professionals employed in both heritage sectors and in local administrations, who may not have been previously trained in the area that they have to make important decisions about.
TH3  THEORETICAL AND METHODOLOGICAL PERSPECTIVES IN ARCHAEOLOGY

Humanities research perspectives on contemporary society are currently “hot topics” on the European scientific agenda. This theme seeks to examine how archaeological knowledge is used and re-used in contemporary society; how archaeological heritage is valued; how additional values are created; how archaeologists can participate in creative cultural life, activity and business. The theme seeks to define how solutions for contemporary societal challenges are promoted and supported by the role of IT based networks of knowledge in society. In that context the theme seeks to define what current questions are important for understanding the social role of archaeology.

This theme invites scientists, researchers and practitioners interested in the current and potential use of archaeology as a tool for informing positive societal change. The theme seeks to extend beyond the archaeological sciences, examining a long list of topics. These include: the role of not-for-profit organizations and communities; issues of social engagement and exclusion; links to creative and cultural industries; social and cultural innovation; current definitions of social capital and broader economic impact; participatory culture and creative collaboration; medias and social networking; school education and interests of Y and Z generations; narratives, identities, participatory culture and creative collaboration; medias and social networking; innovation; current definitions of social capital and broader economic impact; exclusion; links to creative and cultural industries; social and cultural innovation; current definitions of social capital and broader economic impact; participatory culture and creative collaboration; medias and social networking; school education and interests of Y and Z generations; narratives, identities, participatory culture and creative collaboration; medias and social networking. The theme also invites archaeologists who participate in Horizon 2020 projects related to section “Europe in a changing world – Inclusive, innovative and reflective societies” and COST action “Individuals, Societies, Cultures and Health”.

TH3-01  PRACTICAL SKILLS TRAINING IN ARCHAEOLOGY

Friday, 2 September 2016, 11:00-13:00
Faculty of History, Room 329
Author - Karl, Raimund, Prifysgol Bangor University, Bangor, United Kingdom / Universitäts Wien, Wien, Austria (Presenting author)
Co-authors - Prof. Ralston, Ian, University of Edinburgh, Edinburgh, United Kingdom
Keywords: practical skills, standards, training
Presentation Preference - Committee / Working Party meeting

In its annual round table, the Committee for the Teaching and Training of Archaeologists is planning to discuss practical skills training in archaeology. We intend to review the EAA Code of Practice for Fieldwork Training and discuss all aspects related to the teaching and training of practical archaeological skills in Europe and beyond. Whether it is fieldwork or laboratory skills as taught in formal field schools or lab training courses in archaeology degrees; or more informal training in practical skills in extracurricular activities or in the archaeological workplace, we intend to examine different national practices, qualifications awarded or achieved, how training, whether formal or informal is recorded; and whether practical skills training is recognised in career progression and salaries. We would like to examine best practice examples and discuss problems that may occur during or with practical skills training provision, and discuss whether developing more extensive transnational best practice guidance or codes of practice would be of interest to EAA members.

TH3-01 Abstract 01
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.

TH3-01 Abstract 02
Practical Skills Training in Archaeology - Options for the Future?

Author - Prof. Dr. Lodewijks, Marc, Leuven University, Leuven, Belgium (Presenting author)
Keywords: field school, practical skills, training
Presentation Preference - Oral

The various universities in Belgium (Flanders, Wallonia and the Brussels Capital Region) have their origins in different systems and traditions: Catholic, state, or other. In the last few decades, the traditional association of archaeology with history and art history has been gradually eroded, and more attention is now being paid to specific archaeological methodology, practical knowledge and fieldwork. All universities with an education leading to the degree of bachelor or master in Archaeology now organize specific practical skills training as a part of the formal educational program. The extend and quality of these activities largely depend on the capacities and commitment of the staff members and on the adequate financial and logistic assets available. Due to many restrictions and different circumstances practical skills education still relies 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.

TH3-01 Abstract 03
Practical skills training in archaeology - an EAA perspective

Author - Prof. Karl, Raimund, Prifysgol Bangor University, Bangor, United Kingdom / Universitäts Wien, Wien, Austria (Presenting author)
Keywords: practical skills, standards, training
Presentation Preference - Committee / Working Party meeting

In its annual round table, the Committee for the Teaching and Training of Archaeologists is planning to discuss practical skills training in archaeology. We intend to review the EAA Code of Practice for Fieldwork Training and discuss all aspects related to the teaching and training of practical archaeological skills in Europe and beyond. Whether it is fieldwork or laboratory skills as taught in formal field schools or lab training courses in archaeology degrees; or more informal training in practical skills in extracurricular activities or in the archaeological workplace, we intend to examine different national practices, qualifications awarded or achieved, how training, whether formal or informal is recorded; and whether practical skills training is recognised in career progression and salaries. We would like to examine best practice examples and discuss problems that may occur during or with practical skills training provision, and discuss whether developing more extensive transnational best practice guidance or codes of practice would be of interest to EAA members.

TH3-01 Abstract 04
The role of private companies in practical skills training in archaeology

Author - Karl, Raimund, Prifysgol Bangor University, Bangor, United Kingdom
Keywords: practical skills, training

The role of private sector companies in providing practical skills training to students in archaeology is becoming increasingly important. This paper will discuss the role of companies in training archaeologists and the benefits and challenges that they face.
TH3-02
FROM THE COLOSSEUM TO PALMYRA. APPROPRIATION AND OWNERSHIP OF ARCHAEOLOGICAL HERITAGE IN A GLOBAL WORLD

Saturday, 3 September 2016, 09:00-13:00
Faculty of Philosophy, Room 209

Author - Gori, Maja, University of Heidelberg, Heidelberg, Germany (Presenting author)
Co-author(s) - Revello Lami, Martina, University of Amsterdam, Amsterdam, Netherlands
Co-author(s) - Cella, Elisa, Museo Civico Etrusco Romano di Trevignano Romano, Trevignano Romano (Roma), Italy
Co-author(s) - Pintucci, Alessandro, University of Rome La Sapienza, Rome, Italy
Co-author(s) - Pasco, 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 globalized scientific archaeological and the impact of archaeological practice on local and global communities are issues that this session wants to address.

This session aims at:
- understanding the types and levels of archaeological appropriation;
- understanding whether archaeology as discipline is able to overcome its predatory aspects to become more inclusive e.g. facilitating the appropriation of national archaeological heritage by minorities, immigrants, different religious groups, etc;
- exploring uses of heritage in present-day conflicts (e.g. as peace keeping tool, stone of contention, etc.);
- comprehending the role of archaeology in European policy at both State and European Union levels (e.g. in identity building, ethnic conflicts, etc.).

TH3-02 Abstract 02
Archaeological border studies: the impact of the Roman Frontier on the present immigration crisis

Author - Hanscam, Emily, Durham University, Durham, United Kingdom (Presenting author)

Keywords: Border studies, Immigration, Romania

Presentation Preference - Oral

The immigration crisis is one of the greatest modern day conflicts currently affecting Europe. In 2015, 1,294,000 migrants and refugees crossed into the EU and claimed asylum. Identity politics significantly impacted their reception, resulting in an often hostile landscape – a landscape in which the relevance of the past is fundamental. The theory of differential inclusion argues that as migrants cross the borders into Europe, they will experience a setting which is open to some but closed to others (Richardson 2013). Archaeology is complicit in the creation of this setting, and archaeology as a discipline needs to address border studies – some have already begun to draw comparisons between modern borders and the frontiers of the Roman Empire (see e.g. LaFrenze-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 Romania as a European nation, the impact of the Roman Frontier on the lower Danube as a modern border, and start to provide a general methodology for archaeological border studies.


TH3-02 Abstract 03
Developing Politics and Attitudes towards Cultural Heritage in Turkey

Author - Dr. Daniel, 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 complex dynamics among Turkey’s southeastern neighbors where the calculated destruction of cultural heritage has prompted new initiatives of protecting sites and artifacts across the region. Working with the American Research Institute in Turkey (ART) and the US Embassy in Ankara, the Ministry of Culture and Tourism has recently addressed these dynamics and with a series of new programs and projects addressing the increasingly important issues of security and protection. This paper focuses on these efforts as they contribute to the growing importance and necessity of responses on heritage security and protection in the entire region.

TH3-02 Abstract 04
What to Tour? A new perspective on tourism, cultural heritage and archaeology

Author - Dr. Iacomini, Veronica, Confederazione Italiana Archeologi, Roma, Italy (Presenting author)

Keywords: Colosseum, Cultural tourism, Heritage exploitation

Presentation Preference - Oral

The Colosseum is a fixed point of reference for tourists visiting Rome and, in a sense, an icon of Roman Architecture and Roman History. But despite the many Tourists that visit it every year, the Colosseum is also an archaeological site which has been used by many Roman emperors to stage gladiatorial combats and animal hunts. Today, the Colosseum is a UNESCO World Heritage Site and a symbol of Roman Architecture. However, the Colosseum has also been used as a symbol of power and authority by many different regimes, from the Roman Empire to the modern-day Italian Republic. This session aims to explore the many different perspectives on the Colosseum and its role in modern-day tourism, including:

- comprehending the role of the Colosseum in European policy at both State and European Union levels (e.g. in the implementation of the World Heritage Convention);
- assessing the role given to archaeology and, more general, to the “past” as a key tool to contrast the Daesh policies on the same subject; and
- recognizing the importance of the Colosseum as a symbol of Italian identity and a source of national pride. The Colosseum is an example of how cultural heritage can be used to promote national identity and to strengthen the sense of belonging among Italian citizens.

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 words, 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 foreign tourists in Rome) perceive when visiting Rome? Is the Colosseum simply a “must-see” destination or a real “cultural experience”?

In the last decades, thanks to stratigraphic excavations and associated pottery analysis, many Italian opus poligonale monuments have been correctly dated to the Republican Era, deconstructing thus the idea of their belonging to the Archaic period or even earlier. Alatri, a well-known archeological site close to Rome, is a paradigmatic example of new scientific methods deconstructing the idea of a new utopia, similar to the Albanian experience of what Schumpeter asserted to be a Marxist religion. The latter made reference to the everyday life, while constructing evidence for historical pasts that recalled its ideology and values (Dreiro, 2014). Moreover, a focus on the vernacular is purported as inclusive of Albanian “metaphysical believers (Heelas, 2011)” into global postmodern discourses on faith, while it provides a rationale for dissociative “apolitical ideology and values (Qendro, 2014). Moreover, a focus on the vernacular is purported as inclusive of Albanian “metaphysical believers (Heelas, 2011)” into global postmodern discourses on faith, while it provides a rationale for dissociative “apolitical ideology and values (Qendro, 2014).

To this aim, I contend that efforts for the creation of a discursive platform on vernacular traditions are paradoxical due to the fact that they make the case for a new utopia, similar to the Albanian experience of what Schumpeter asserted to be a Marxist religion. The latter made reference to the everyday life, while constructing evidence for historical pasts that recalled its ideology and values (Dreiro, 2014). Moreover, a focus on the vernacular is purported as inclusive of Albanian “metaphysical believers (Heelas, 2011)” into global postmodern discourses on faith, while it provides a rationale for dissociative “apolitical ideology and values (Qendro, 2014).
**TH3-03 OPEN ACCESS AND OPEN DATA IN ARCHAEOLOGY: FOLLOWING THE ARIADNE THREAD**

**TH3-03 Abstract 01**

**Requirements for open sharing of archaeological research data**

**Author:** Dr. Gaser, Guntram, Salzburg Research, Salzburg, Austria (Presenting author)

**Keywords:** e-infrastructures, open data, repositories

**Presentation Preference:** Oral

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.

**TH3-03 Abstract 02**

**The Reputation effect**

**Author:** Dr. Gattiglia, Gabrielle, University of Pisa, Viareggio, Italy (Presenting author)

**Co-author(s):** Anichini, Francesca, University of Pisa, Viareggio, Italy

**Keywords:** open access, open data, Reputation

**Presentation Preference:** Oral

Archaeologists recognise the potential impact that the sharing and 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.

**TH3-03 Abstract 03**

**Antiquarians in the 21st Century: Opening up our data**

**Author:** O’Riordan, Emma Jane, Society of Antiquaries of Scotland, Edinburgh, United Kingdom

**Co-author(s):** Oxborrow-Martin, Erin, Society of Antiquaries of Scotland, Edinburgh, United Kingdom (Presenting author)

**Keywords:** open access, publishing, research

**Presentation Preference:** Oral

The Society of Antiquaries of Scotland has been an active publisher of Scotland’s history and archaeology since 1792; the Proceedings of the Society of Antiquaries of Scotland (PSAS), has been the primary journal dealing with Scotland’s past in its British and European context since 1851. Publication in PSAS has often been seen by many archaeologists as the ‘end’ of the research cycle: excavation is followed by publication, and the process is complete. However, there is increasing awareness that the final report alone does not tell the whole story, and many readers would also like to examine raw data. In 2001, the Society created a new, fully peer reviewed, freely available online journal, Scottish Archaeological Internet Reports (SAIR), so was an early adopter of Open Access in an archaeological context. SAIR was intended to provide a new, lower-cost publication outlet for detailed archaeological reports; over the last fifteen years it has evolved to include the publication of many different types of projects – including large-scale surveys, gazetteers and conference proceedings – which would not be possible or desirable to publish in print for various reasons.

The Society also runs the Scottish Archaeological Research Framework (ScARF). Launched in 2012, this collaborative project brought together experts from a range of disciplines to compile a peer-reviewed summary of our archaeological knowledge up to that point and agree where future research should be directed. The entirety of Scottish archaeology was split into nine panel reports, all of which are available for free download from the project website or can be viewed on the wiki-style website itself. As such, it is the first framework of its kind in archaeology. The Society is contemplating how best to take PSAS, SAIR and ScARF forward in an Open Access world. Our audiences are increasing, both in number and in variety. There have been over 400,000 downloads from Society’s publication archives held by the Archaeology Data Service (ADS) since 2011, and over the past three years SAIR 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 scientists in many other fields such as 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 research chain and not only data paper) should be connected to primary data. These biannual volumes called MAPPA Data Book are conceived as a series of archaeological monographs designed with a dual level of publication: a paper, in which the archaeologists can analyse the data recorded, and the data set published as open data in the MOD (MAPPA Open Data), the open data repository of Italian archaeology. The volumes are published as open access and in a print on demand mode.

As for fostering network-based interaction, we are going to launch a communication campaign aimed to promote the use of academic social network, such as academia.edu and researchgate.net, for embedding the links to the data sets archived in our repository. In this way, on the one hand the archaeologists that share their data can take advantage of the academic social network realised by these platforms and of the metrics that reflect the impact of a contribution, on the other hand the repository can focus on data publication and long term preservation.

Thus archaeological data sharing becomes a way for researchers to collaborate and thereby meet the needs of an increasingly complex research landscape, and the reputation effect becomes a way to foster data re-use.
Theoretical and methodological perspectives in archaeology

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 will present the results of the project so far and our aims until the end of the project. We will also talk about the working process and our experiences as archaeologists in a project where we present an interface between archaeologists specialized on the subject area of Neolithic archaeology and technicians.

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Beyond the Pale: grey literature as a method of publication

The SITAR (Archaeological Geographic Information System of Rome) has been designed and implemented by the Archaeological Superintendency of Rome, with the aim of making the archaeological data, coming from the Office’s archives, freely accessible to the public. SITAR database is now made up of about 4,000 information source records - i.e. archaeological excavations or other archaeological studies or surveys, from which about 14,000 record of “archaeological part” have been freely accessible to the public. SITAR database is now made up of about 4,000 information source records - i.e. archaeological excavations or other archaeological studies or surveys, from which about 14,000 record of “archaeological part” have been identified, each of which represents a descriptive unit distinguished on the basis of a chronological and functional criteria.

Data are currently published online on SITAR Project’s WebGIS portal (http://webais.archeoitarproject.it/webgis/login.php), where they can be freely consulted.

The SITAR Project, partner of the Ariadne project from 2013, is completing in the early months of 2016 the analysis of data licensing, starting from the analysis of the Italian regulatory framework and the comparison with the best practices developed by other project partners.

The study has been carried out in collaboration with the Central Institute for the Union Catalogue of Italian Libraries and Bibliographic Information (ICUC) and the University of Padua, and in particular it intends to outline the direction of the methods for achieving interoperability between databases, on Open Data release within Ariadne and the managing and licensing of original archive documents, i.e. grey literature, which have been digitized.

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Archiving interoperability and opening data: practical implementation

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 findings. Furthermore, the amount of grey literature often matches or surpasses what may be considered the traditional published record.

Although recent projects have done much to highlight the potential of this corpus, and initiatives such as OASIS 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 underestimated. 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.
data aggregation infrastructure include: ingestion, normalization, transformation and validation processes that mainly focus on the homogenization and clearing of heterogeneous data. A portal is usually employed to present this information to the end users and is met with limited success. One way 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 data 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 thesauri (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, register relations, create 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 ElasticSearch 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 from the RDF store. End users ranging from simple visitors to domain researchers can access this data through the infrastructure’s portal which is capable of hiding the complexity of this plethora of data, filter the results using a plethora of filters and present connected resources in a way that can help guide the user instead of confusing him/her.

The technical infrastructure has been developed using various programming languages such as Java, PHP, JavaScript. It is distributed spanning multiple virtual machines and brings together different established technologies and components. Both the technical infrastructure and the portal will be presented and demonstrated.

TH3-03 Abstract 09
Linked Open Data Approaches within the ARIADNE Project
Author - Dr. Wright, Holly, University of York, York, United Kingdom (Presenting author)
Keywords: ARIADNE, Linked Data, Open Data
Presentation Preference - Oral
ARIADNE is a four-year EU FP7 Infrastructures funded project, made up of 24 partners across 16 European countries, which hold archaeological data in at least 13 languages. These are the accumulated outcome of the research of individuals, teams and institutions, but form a vast and fragmented corpus, and their potential has been constrained by difficult access and non-homogeneous perspectives. ARIADNE aims to bring together and integrate existing archaeological research data infrastructure, so researchers can use these distributed databases 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.

TH3-03 Abstract 10
ArchaeologistsEngage. Thinking Big - We Can Change Archaeology
Author - Tibbetts, Belinda, Exeter, United Kingdom (Presenting author)
Co-author(s) - Schenck, Tine, ArchaeologistsEngage, Oslo, Norway
Co-author(s) - Wapnott, Emily, Southwest Archaeology Ltd, South Molton, United Kingdom
Euryasources - Engagement, Public, Social
Presentation Preference - Poster
ArchaeologistsEngage encourages engagement between archaeologists and the public. We offer a platform for public engagement and dialogue through social media and a range of events. In January we launched Challenge 2016, an exciting call to archaeologists to undertake one new form of public engagement to improve the direct dissemination of our research to members of the public.
TH3-04 Abstract 02

Islamic archaeology: theoretical and methodological issues

Author: Asst. prof. Davran, Cemil, Abdulkodum Ul University, Kayseri, Turkey (Presenting author)
Keywords: Islamic archaeology, theory, methods
Presentation Preference - Oral

This contribution wishes to present an appraisal of the discipline of Islamic archaeology and to analyse and discuss its development and the current trends in the discipline.

The origins of Islamic archaeology span a little more than a century and its strong initial relationship with the history of art and monumental architecture shaped its early development; only in the 1980s Islamic archaeology could gain its independence from these fields of study and start facing new challenges such as carving its place within the field of Islamic studies and looking for common approaches with other fields of archaeology. In the last thirty years Islamic archaeology has thus witnessed a great development both in discoveries and interpretation, where it came to apply a long durée approach to the study of the material culture and the methods of mosaic archaeology to the castles of the Middle East. Like other historical archaeologies, Islamic archaeology has often suffered from a sense of inferiority to the written records and has only recently begun to overcome it.

One of the first and foremost articles dealing with the theoretical issues of the discipline was published at the end of the 1980s (Inoue, 1999) and since that moment publications taking a stake of the discipline and its theoretical frameworks have grown (see for example Walmsey, 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 Islamic countries and other countries, particularly Europe, and needs to be recognized as a fundamental element to achieve a comprehensive knowledge of the development of the Mediterranean zone. Finally, present weaknesses of the discipline and future directions will also be debated; particularly, I will examine the role of digital technologies in the field of Islamic archaeology.

TH3-04 Abstract 03

Ottoman Mediterranean and its archaeology between two worlds

Author: Dr. Dikkaya, 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

Conciliating Islamic, Byzantine & Medieval Lives through Lefebvre Spaces at Darband

Author: Dr. Shingiray, Irina, University of Oxford, Oxford, United Kingdom (Presenting author)
Keywords: Byzantine and Islamic archaeologies, Medieval Europe, Theoretical Framework
Presentation Preference - Oral

This paper seeks to contribute to the debates regarding chronological and spatial incongruities which exist between the realms of the Islamic, Byzantine, and Medieval archaeologies, and will propose a theoretical framework which helps to reconcile and integrate those fields through archaeological common ground. The basis for this archaeological model is the site of Darband in the Eastern Caucasus – the fortress that marked the frontier between the world of the Christian culture of the Late Antiquity/ Byzantine Empire, the Islamic Caliphate, and Medieval North represented by the indigenous people of the Caucasus and the 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 Lefebvre 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.
Sudden and almost complete changes in material culture are, in archaeological contexts, frequently ascribed to migration. An inauspicious example is the almost complete replacement of Romano-British artifacts by those from north-west Europe in many parts of England in the first few decades of the early fifth century AD.

The paper begins by offering a brief critique of current models for explaining such rapid change in which migration is given a leading role: military cohesion among migrant groups; their apparent resistance to assimilation; replacement of existing leaders by high status immigrants; and ethnogenesis, the deliberate framing of political ideologies aimed at rationalizing territorial control. It notes that all elements of such models take a "top down" view, in which access to power is predicated on status and wealth within hierarchical political structures, and where cultural change is explained in terms of leadership by an elite.

The paper moves to an alternative, experimental, "bottom up" approach to investigating rapid changes in material culture. It begins with the premise that all aspects of a stable, sustainable, agricultural economy depend on property rights over land. Access to and exercise of property rights enable an individual to make a living, offer the opportunity to generate a surplus or acquire goods, and create opportunities for personal interaction with elites through tribute, gift-giving or taxation. An analysis focused on the practical management of agricultural property rights offers the possibility of a "bottom up" perspective on cultural change that anchors abstractions about social relations into the everyday realities of making a living.

The paper then explores the impact of migration on the daily lives of peasant cultivators through their common property rights in territorial resources. It notes the structural link between property rights and governance, the role of the latter in the regulation, maintenance, protection and enforcement of property rights, and the generalized predictability of frameworks for governing shared resources - in particular their characterization as "horizontal", predicated on equity among all right-holders and exemplified through normative expectations of participation and consensus. It goes on to examine Ravenstein's (1885) classic conclusions about migrants and the migration process through the lens of common property rights and their characteristic governance structures. It concludes that, however great sudden changes in material culture might be, if there is archaeological evidence for the contemporary continued exploitation of collective resources then it is highly likely that immigrants and their descendants were assimilated into receiving communities and that they were unlikely to have been a driving force in that cultural change.

The argument does not discount the possibility of cultural change as a result of variations in access to resources, wealth and status whether or not as a result of migration. Nor does it challenge the existence of political and social hierarchies. It argues, instead, that the complementary contribution of collective traditions should not be neglected in explaining transformative cultural change. The paper concludes by suggesting the need for more complex, more dynamic, perhaps even epidemiological, models to explain change in the human past.

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**TH3-05 Abstract 01**

**Feminism and Materiality in Archaeology**

**Author**: Associate Prof. Christina, Fredengren, Stockholm, Sweden (Presenting author)

**Keywords**: Environmental Humanities, Heritage, Posthumanism

**Presentation Preference**: Oral

This paper makes use of feminist posthumanism to outline how a range of heritage policies, practices and strategies, partly through their base in social constructivism have a clear anthropocentric focus. Not only do they risk downplaying materiality, but also a number of human and non-human Others, driving a wedge between nature and culture. This may in turn be an obstacle for the use of heritage in sustainable development as it deals with range of naturalized others as if they have no agency and leaves the stage open for appropriation and exploitation. This paper probes into what heritage could be in the wake of current climate and environmental challenges if approached differently. It explores how a selection of feminist posthumanisms challenge the distinction between nature/culture in a way that could shift the approach to sustainability in heritage making from a negative to an affirmative framing.

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**TH3-05 Abstract 02**

**Time, Colonialism and the Intricacy of Relational Practice**

**Author**: Professor Cornell, Per, University of Gothenburg, Västra Frölunda, Sweden (Presenting author)

**Keywords**: Americas, Colonialism, Relationalism

**Presentation Preference**: Oral

In the context of destructive and fascistic 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 Braudt. But there is also a need to critically consider aspects of relationship, like those developed by Haraway or Barad. The general frame must allow for an intricate of time, for varied times and processual developments operating in different fields and in different spheres. Revisiting certain ideas from Marx, perhaps partly surprising, can prove productive and stimulate new approaches to questions of historical process, class and exploitation.
TH3-05 Abstract 03
Where is the Feminism in Archaeology?

Author - Tonge, Joanna, University of Southampton, Poole, United Kingdom (Presenting author)
Keywords: Feminism, Gender, Survey

Using methodologies of history of science and archaeology, and of gender studies, we will seek to comparatively analyze the status of women in archaeology practiced in Portugal in the 60ies. We will list, for that, names, research projects and knowledge production places. A method that will allow us to understand if the participation of women in archaeology in the country in those years, corresponded to the emergence of new research topics and ways to observe the material realities identified in the field and (apparently) absent from the archaeological record, as female ones. We intend, therefore, to realize to what extent women archaeologists contributed to the development and archaeology statement in Portugal, perceiving translated knowledge networks, or not, in sharing and perpetuation of theories and methods. Only then can we recognize the existence of individual scientific independence, especially in women, or, on the contrary, the (consciously or unconsciously) reproduction of already established theoretical models.

TH3-05 Abstract 04
Politics and archaeology in an uncaring universe, or feminism without historical binaries

Author - Professor Robb, John, University of Cambridge, Cambridge, United Kingdom (Presenting author)
Keywords: evolution, gender, politics

In 1958, Lisbon hosted the first National Archaeological Congress. Being itself a novelty in the Portuguese archaeological profession, in particular of academics with teaching posts indicate that archaeological modules which focus on feminism in both undergraduate and postgraduate settings have now fallen by the wayside. By investigating publications of a specifically feminist or gender archaeology together with modules taught at universities across the Western academic archaeology tradition, the results of this research illuminate a post-modern trend to scrap categories and accordingly the marginalisation of those subjects which require categorisation for acknowledgement.

TH3-05 Abstract 05
Women and archaeology in Portugal during the 60ies of the 20th century: ‘exceptio firmat regulam’?

Author - Doctor Martins, Ana Cristina, Faculdade de Ciências Sociais e Humanas da Universidade NOVA de Lisboa, Lisboa, Portugal (Presenting author)
Keywords: Portugal, Theory, Women

In 1958, Lisbon hosted the first National Archaeological Congress. Being itself a novelty in the Portuguese archaeological panorama, this Congress has integrated other innovations, likewise a growing number of women in archaeology. Situation confirmed in the following decade, when the number of women dedicated to archaeology has been more evident. Toward that several political factors that characterized the important 60ies, influenced largely by changes observed in culture and cross-border mentality, as witnessed young graduates Portuguese archaeologists academically in other European countries.

Using methodologies of history of science and archaeology, and of gender studies, we will seek to comparatively analyze the status of women in archaeology practiced in Portugal in the 60ies. We will list, for that, names, research projects and knowledge production places. A method that will allow us to understand if the participation of women in archaeology in the country in those years, corresponded to the emergence of new research topics and ways to observe the material realities identified in the field and (apparently) absent from the archaeological record, as female ones. We intend, therefore, to realize to what extent women archaeologists contributed to the development and archaeology statement in Portugal, perceiving translated knowledge networks, or not, in sharing and perpetuation of theories and methods. Only then can we recognize the existence of individual scientific independence, especially in women, or, on the contrary, the (consciously or unconsciously) reproduction of already established theoretical models.

TH3-05 Abstract 06
Bones, Stones, and Names - determining and naming prehistoric men and women

Author - Dr. Fries, Jana Esther, Lower Saxony State Service for Cultural Heritage, Oldenburg, Germany (Presenting author)
Keywords: Binary Perception, Physical Anthropology, Venus

Presentation Preference - Oral

The paper discusses by which methods and means a certain sex is attributed to the bodies of prehistoric individuals or depictions and the effects of an (early) ascription. Bog bodies, skeletal remains and cremated bones have been determined as physically male or female by physicians, archaeologists and physical anthropologists. Statuettes 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.

TH3-05 Abstract 07
The end of archaeology as we know it

Author - Dr. Vogel, Helga, Free University Berlin, Berlin, Germany (Presenting author)
Keywords: Ancient Near Eastern Studies, Archaeology of the gap, Function of theory

Presentation Preference - Oral

One of my favourite thinking-things are the findings unearthed by Leonard and Kathleen Woykeley and their workmen in the Royal Cemetery at Ur in what is today South Iraq. The archaeological record of the cemetery around 2500 BC is well known beyond the narrow limits of ancient Near Eastern studies partly because of the exceptional grave goods, which still provide one important fundament of our knowledge of ‘Sumerian culture’, partly because of the mass burial of 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, hardly noticing the actual archaeological record. Now, my on approach to make some sense of the findings of the Royal Cemetery was always very material based taking into account not only the 16 ‘special graves’ but the whole Early Dynastic cemetery (roughly 660 graves). The result is this: scarcely anything fits together and everything seems contradictory. The situation may be summed up in one statement (actually a Detroit based music collective’s motto): UR, this is Underground Resistance, unexploitable. What is the function of theory in such a situation? More than gloss over lack of knowledge? Does it make any sense, for example, to interpret the positions of dead bodies in a 4500 year old ancient grave with Foucault’s concept of ‘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 Us against our access/ exploitation? Whom do we serve by producing fantastic ‘knight in shining armour’ narratives (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.

Using methodologies of history of science and archaeology, and of gender studies, we will seek to comparatively analyze the status of women in archaeology practiced in Portugal in the 60ies. We will list, for that, names, research projects and knowledge production places. A method that will allow us to understand if the participation of women in archaeology in the country in those years, corresponded to the emergence of new research topics and ways to observe the material realities identified in the field and (apparently) absent from the archaeological record, as female ones. We intend, therefore, to realize to what extent women archaeologists contributed to the development and archaeology statement in Portugal, perceiving translated knowledge networks, or not, in sharing and perpetuation of theories and methods. Only then can we recognize the existence of individual scientific independence, especially in women, or, on the contrary, the (consciously or unconsciously) reproduction of already established theoretical models.
TH3-05 Abstract 08
Contributions of social anthropology to the knowledge of the status of the adorned bodies in archaeology

Author - Dr. Belard, Choite, University of Southampton, La Roche sur Yon, France (Presenting author)
Keywords: adorned body, gender, archaeology, social anthropology
Presentation Preference - Oral

This paper proposal intends 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 of the notion of intersectionality. Three questions are fundamental: who are the wearers of adornments, why do they wear them and for whom? Furthermore, which aspects of adornments are used by several human groups as a medium to create social categorisation and which other aspects can be individualized? Finally, how bodies and movements of men and women can be controlled by means of adornments and to which aspects of gender ideology of each society this can be linked? Therefore, this research project aims to investigate to what extent social anthropology can allow us to better understand the body and symbolic use of buried adornments.

TH3-05 Abstract 09
Was there always a man and a woman?
On flexibility of sexuality in historical Islamic Iran

Author - Prof. Papis Yazi, Leila, Nayshabour, Iran (Presenting author)
Co-author(s) - Daudshahpour, Maryam, University of Heidelberg, Heidelberg, Germany
Keywords: flexibility, Safavid Iran, Teimurid Iran, sexuality, bisexuality, homosexuality
Presentation Preference - Oral

Being propagated repetitively, the general image of contemporary Middle Eastern Muslim women is comprised of feminine bodies rapped in black cloths called Chador (veils), the ones who cry more than speak, feel more than deduct and are always fighting/to be controlled by a very patriarchal society. Such an image has been seriously produced based on a very recent dichotomy between genders, women and men. Violent dominant men/dominated women.

How much these images can be generalized to the past? During the last decade, the propagated image of Islamic sexuality has been very much challenged by historians. Referring the miniatures, sculptures and wall paintings, the performativity of gender during medieval ages can be very differently described from the recent propagated one.

Chronologically, by the entrance of Islam to historical Iran the change of the solid Zoroastrian dichotomic concept of men/women begun while afterwards the invasion of the region by central Asian Turks made bisexuality normative. Very famous pieces of literature such as Ghabosnamah [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 heterosexually in order to control the bodies and also to revise the pre-Islamic value.

Analyzing pre-modern Islamic Shi’a, it is obviously detectable that there were always ways to put these vast ranges of sexual activities out of punishment frameworks. Archaeologically speaking, such a distinctive gender performativity has been materialized in the remained material culture related to the body such as wall paintings, pottery motifs and miniatures. In the first glance, the flexibility of sexuality would be observed within the manner applying by the painters who have visualized the bodies, there are very few distinctions between the bodies of men and women freely acting, practicing sex and everyday life while there were several words addressing several types of sexuality in the literature.

In this article, the authors try to investigate material 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 ‘tellings’ 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 “tellings” (ways of thinking) which set out a moral or ontological geography. Moral travel through this geography constitutes a process of becoming which produces difference (cf Marshall 2012 Feminist Theory). Simple moral travel produces everyday 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. If, as Grosz suggests, difference is enacted equally through or across ‘natural’ and cultural’ processes, the ceramics can be understood as materialities/bodies that share processes in common with other bodies (flesh, stone, etc.) regardless of the stuff out of which they are made. Anthropomorphism then becomes less a question of resemblance and more one of marking and enacting difference.

TH3-05 Abstract 12
Foreign women – from merchandise to merchant.
The change in interpretations

Author - Dr Koch, Julia Katharina, Lektorat für Archäologie, Preetz, Germany (Presenting author)
Keywords: gender archaeology, agency, 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 to prehistoric realities beyond modern ideals and utopian (feminist) wishes. A further aspect of this topic is the influence of the new scientific methods like isotop analysis on actual mobility models.
Implementing Intersectionality: Diversity of Viking-Age Shields

Author: PhD student O. Nævåkild, 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-era 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 interact.

My research explored 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 perceiving 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.
REVEALING THE MAKING AND BREAKING OF COMMUNITY IN EUROPEAN PREHISTORY

Friday, 2 September 2016, 14:00-16:00
Faculty of Philosophy, Room 107
Author - Bonney, Emily, California State University Fullerton, Long Beach, United States of America (Presenting author)
Co-author(s) - Johnson, James, Vienna Institute of Archaeological Science, Vienna, Austria
Keywords: community, Neolithic
Presentation Preference - Regular session

Archaeological imaginations of ‘community’ are central to both our theoretical foundations as well as our methodological. Whether explicit or implicit, community acts as a meshwork for how people, materials, discourses, and ideas are brought together to form meaningful enterprises, in addition to how archaeologists investigate communities. Recent additions to the increasingly rich body of literature on community focus on the relational ontologies of community, addressing the fluid and dynamic nature of human-based communities to be more inclusive of plants, and animals, geological formations. In Tim Ingold’s (2011) terms, we must undo the inversion that seeks to turn communities into immovable and immutable points and dots. Instead, we should focus on meshworks that highlight the life, growth, and movement. Such meshworks are immersed in the ebbs and flows of life. Building upon Ingold’s idea of meshworks, we include in this the eventual breakdown or disintegration of community as an interesting and important topic of exploration.

Despite the important and theoretically vibrant research being done on community, the epistemologies involved in the identification of community remain relatively uninterrogated and/or avoided. This may be because considerations of ontology and epistemology in archaeological research of community are treated as separate ‘knowable’ conditions and are thus studied individually. We suggest that community ontology and epistemology are inseparable and should be treated as such. To better understand how communities were made in the past, and how best to identify them, we further suggest that archaeologists explore the life history of community, rather than just their emergence or other specific temporal and spatial points of interest. We invite scholars of European prehistory (broadly considered) to explore these meshworks and to critically interrogate their epistemologies for identifying communities in prehistory.

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TH3-06 Abstract 01
A phenomenological turn in archaeological explanation: is it possible?

Author - Assoc. Professor Toonev, Tsioni, National Institute of Archaeology and Museum - Bulgarian Academy of Sciences, Sofia, Bulgaria (Presenting author)
Presentation Preference - Oral

Archaeology borrows ideas from semiotics which in its reductionist variant sees symbolic features as passive signs that only through the acts of mind acquire social value. To improve archaeological explanation it should be studied the logic of how individuals and communities establish epistemic relations and how they create their own ontologies. I will provide examples of prehistoric symbolic behavior based on similarities not measured in distance and time but on how people perceive things.

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TH3-06 Abstract 02
The making, the breaking and the remaking of the Greek Neolithic Community

Author - Consulting Prof. Pyrgaki, Marie, Hellenic Open University, Athens, Greece (Presenting author)
Keywords: Community, Neolithic
Presentation Preference - Oral

This paper explores the meshworks and examines their epistemologies for identifying the Greek Neolithic Community. Community and its constituent parts were continually being made, broken and remade over the year (Amil 2002; van Wees 2008). The community acts as a meshwork for how people, things, feelings and ideas are linked by some kind of association. The last few years have seen journals and conference papers with references to networks, bundles (Kneale 2003, 2005; Faulkner 2013), entanglements (Hodder 2011, 2012) and assemblages (following Deleuze and Guattari 2007; DeLanda 2006). This paper discusses the Ingold’s idea of meshwork. Ingold (Ingold, In Lines 2017) takes inspiration from Deleuze and Guattari’s idea of assemblages and he prefers the concept of a meshwork to describe the rhizomatic, living, co-creative entanglements of humans and other beings. Yet something, he stresses that knowing must be reconnected with being, epistemology with ontology, thought with life (Ingold 2011).

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TH3-06 Abstract 03
A Minoan Meshwork: Gathering the Natural World into Community

Author - Prof. Miller Bonney, Emily, California State University Fullerton, Long Beach, United States of America (Presenting author)
Keywords: Community, Crete, landscape
Presentation Preference - Oral

The making and breaking of community on Crete has been considered within the framework of the search for the emergence of a state understood generally in political and economic terms. Thus the refined luxury of Late Bronze Age Cretan palatial culture (1625-1500 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 probed into the ways in which power was acquired and deployed and in particular concentrated at the massive site of Knossos. While recent scholarship has looked at earlier periods as something more than just the prelude to the palaces the discussion still envisages community as polity. But Hitchcock (2007), Goodison (1998) and Chapin (2001, 2004) have pointed to another element in palatial culture that suggests different ways of envisaging 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 allusions are more than just referential. Instead they reveal the way in which the life history of community on Crete always was enmeshed in the landscape most broadly, and that parallel to the shifting economic and political structures seemingly centered on significant architecture there was a broader community woven into the environment. Thus when communities dispersed at the end of the Neolithic around 3100 BCE many populations effectively took with them the caves they had occupied and used for burial relocating these as built circular stone tombs or tholoi and eventually reassert as house tombs providing the new center for social interaction. Animal vases in the tombs further attest to this linkage with nature. The gradual accretion of villages and towns in the territory around the tombs yielded at the transition into the Middle Bronze Age ca. 1590 BCE to a 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.

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TH3-06 Abstract 04
Communities of death: Microarchaeological analysis of community reproduction in Bronze Age Hungary

Author - Polanyi, Tamas, Northwestern University, Evanston, United States of America (Presenting author)
Keywords: community reproduction, micro-politics of death, social discourse
Presentation Preference - Oral

Sociopolitical transformations of Central European Bronze Age were marked by the appearance of fortified settlements, long-distance trade in bronze and secondary animal products, warfare and radical changes in death rituals. In this paper I study the ways in which local communities negotiated and facilitated such broad historical changes. Challenging reproduction of communities, contradictions arose between local investments in subsistence, operational for the construction of communal identities, and distant relationships of trade and people. Emerging networks of exchange and prestige competition introduced new knowledge, wealth, and distinctive lifestyles, which created tensions within communities. Furthermore, the introduction of new materialities provided means for innovative social and political configurations by opening up alternative sources of power for the construction of personal distinctions.

In this paper I present archaeological evidence for political discourse to narrate processes that led to the slow transformation and subsequent dismantlement of close-knit corporate communities in central Hungary by the end of Middle Bronze Age. Although often neglected in the analysis of social change, I argue that funerary practice offer an important insight into the life histories of communities. Here, I will demonstrate the active construction and negotiation of communities through a comparative and contextual analysis of multiple communal cemeteries. I propose a multiscalar and historical processual approach to death rituals interpret the micro-politics of funerals and the broader historical circumstances that shaped the lives of communities.
TH3-06 Abstract 05
Entanglements of pottery acquisition strategies in the Mycenaean palace at Pylos
Author - 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

Mycenaean economy has been a subject of numerous analysis, focusing mostly on various aspects of palatial redistribution, exchange and control system (Voutasiki and Killian 2001, Pullen 2010). The idea of the “palace”, which was supposed to be dominant in Mycenaean social and economic landscape, still constitutes the foundations of our thinking about the processes taking place in the Late Bronze Age Aegean. But in the meantime, many scholars have pointed out a clear duality in Mycenaean economy. It consisted of the “palatial” section, visible thanks to the archives of Linear B tablets, as well as “non-palatial” section, noticeable only by the archaeological remains and sporadically appearing in the archives (Shelmerdine and Palaima 1986, Bennet 2001, Knappe 2001, Whitley 2001, Galaty 2007, Nakassis 2015).

Within the broad subject of Mycenaean economy I would like to scope only on the one particular subject of pottery acquisition strategies in the palace of Pylos, narrowing the analysis only to the last period of its existence. The duality of Mycenaean economic system mentioned above, can be clearly seen and presented within that subject. The period LH IIIB, dated roughly to the 13th century BC (Shelmerdine 2008: 4), is the climax of Mycenaean palatial civilisation, containing most of available archeological remains. The palace at Pylos, after 300 years of development was by that time a complex, bureaucratic, administrative and industrialized structure (Wright 1986). It's organisation and ways of controlling the society and economy were the subject of numerous papers and analyses, approaching this extremely wide subject with different perspectives and propositions (Shelmerdine and Palaima 1986, Voutasiki and Killian 2001, Galaty and Parkinson 2007, Pullen 2010). I would like to propose a combined model based on earlier papers. The strategy of palatial pottery acquisition system will be presented as, an again two-dimensional system, with two main pillars. Firstly, the pottery industry has been affected with the designation of the “royal” potter, who probably together with his co-workers or competitors listed on tablets, had become high-rank and specialized producers, cooperating with the palace, supporting the warans in fulfilling his duties and enjoying special privileges. The second pillar of the pottery acquisition strategy was obtaining all the other needed vessels through a taxation of various local workshops, existing in the town of Pylos and the internal part of the Hither Province of the state. I would like to present this model using the idea of entanglements, created by Ian Hodler (2012). Outlining the wide web of dependences, between things and humans involved in Pylian pottery industry, will help to better understand its complexity and position in the Mycenaean community of Messenia.

TH3-06 Abstract 06
Creating Locality: Place and Community along a Fen River
Author - Dr. Kohring, Sheila, University of Cambridge, Cambridge, United Kingdom (Presenting author)
Co-author(s) - Boulton, Kate, University of Cambridge, Cambridge, United Kingdom
Keywords: community, landscape, locality
Presentation Preference - Oral

How do you define ’being a local’? Often this is an intangible concept wrapped up in a sense of community identity including an intimate knowledge of your social network and immediate environment. Embedded in this is a shared understanding of the time and place.

Within the broad subject of Mycenaean economy I would like to scope only on the one particular subject of pottery acquisition strategies in the palace of Pylos, narrowing the analysis only to the last period of its existence. The duality of Mycenaean economic system mentioned above, can be clearly seen and presented within that subject. The period LH IIIB, dated roughly to the 13th century BC (Shelmerdine 2008: 4), is the climax of Mycenaean palatial civilisation, containing most of available archeological remains. The palace at Pylos, after 300 years of development was by that time a complex, bureaucratic, administrative and industrialized structure (Wright 1986). It's organisation and ways of controlling the society and economy were the subject of numerous papers and analyses, approaching this extremely wide subject with different perspectives and propositions (Shelmerdine and Palaima 1986, Voutasiki and Killian 2001, Galaty and Parkinson 2007, Pullen 2010). I would like to propose a combined model based on earlier papers. The strategy of palatial pottery acquisition system will be presented as, an again two-dimensional system, with two main pillars. Firstly, the pottery industry has been affected with the designation of the “royal” potter, who probably together with his co-workers or competitors listed on tablets, had become high-rank and specialized producers, cooperating with the palace, supporting the warans in fulfilling his duties and enjoying special privileges. The second pillar of the pottery acquisition strategy was obtaining all the other needed vessels through a taxation of various local workshops, existing in the town of Pylos and the internal part of the Hither Province of the state. I would like to present this model using the idea of entanglements, created by Ian Hodler (2012). Outlining the wide web of dependences, between things and humans involved in Pylian pottery industry, will help to better understand its complexity and position in the Mycenaean community of Messenia.

TH3-07 Abstract 01
The Place and Importance of the Working Parties & Committees in the EAA
Author - PhD Yaltan, Emin, Cultural Awareness Foundation Istanbul, CIE-Center for International Heritage Ac, Istanbul, Turkey (Presenting author)
Co-author(s) - van den Dries, Monique, Leiden University, Leiden, Netherlands
Keywords: EAA, Strategies, Working Groups
Presentation Preference - Oral

The recent conflicts witnessed by the world have created a range of new dilemmas for the management of cultural heritage sites, museums, cultural artifacts and so on. Working Parties are one of the core elements of the EAA to produce knowledge, strategies and propose decisions about specific issues. There are positive and negative changes happening in the world and this fast rhythm of dynamism necessitates updating in the fields of archaeological practices, interpretations, documentations and protection measures. The Working Parties and Committees have crucial role in contributing to that updating process.

This form of organization enables members to express themselves, to share thoughts, and to create proposals. The outcomes of discussions within these groups are unequivocally important for the future of European archaeology. This presentation aims to remember the initial objectives of Working Parties and Committees within the EAA, what the current situation is and to discuss how to generate a network and connection between related Working Groups and how to appeal to the wider members to join these active smaller units.

TH3-07 Abstract 02
Experiences from the Farming, Forestry and Rural Land Management Working Group
Author - Dr. Helyar, Vincent, Historic England, London, United Kingdom (Presenting author)
Keywords: common agricultural policy, European Commission, rural
Presentation Preference - Oral

The EAA/EAC Working Group on Farming, Forestry and Rural Land Management has been active now for over 10 years. Its foundation and its subsequent work have been a recognition that - not only is the European Commission more active in rural policy
TH3-07 Abstract 03
The working group „Archaeology and Gender in Europe (AGE)“: views on the past and to the future
Author - Dr. Gustavelli-Schumann, Doris, Freie Universität Berlin, Hamburg, Germany (Presenting author)
Presentation Preference - Oral
In 2009, the working group „Archaeology and Gender in Europe (AGE)“ was started. It has as its area of concern the discussion of Gender issues in European archaeology, where gender is considered both as a structural element to be studied in the past and as influencing research in the present. It addresses the study and the understanding of gender arrangements in the past and the study and understanding of how current gender systems affect archaeology as an academic and professional practice.

Today AGE is a very active working group with 58 members from Europe and beyond (U.S., Iran) which is organizing sessions to gender-related topics at the Annual Meetings of the EAA. To make these sessions more sustainable, they should also be published.

With this paper, I would like to give a short overview over the actions of AGE in its first 7 years. As mentioned in the round table abstract, at the Annual Meetings of the EAA is much room for the presentation and discussion of research, but mainly in an individual perspective. Working groups can organize session within their topics, but besides that there is not much room for the presentation of work and communication 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 archaelogical associations
Presentation Preference - Oral
Archaeologists have power, real power. The power to inspire; the power to bend people; the power to influence; the power to address and make change. We are perceived as interesting. We, ourselves and our work have a pull on the general audience and fellow human beings. Our potential “selling power” makes the average politician and activist drool. In the past 50 years we have incidentally used our influence to protect Cultural Heritage to great effect. EAA can look back on a series of successes where it was able to effect developments to protect Archaeology in Europe. But even with this in mind, generally speaking we as individual archaeologists or even as a group feel that we are politically speaking of little relevance; or even powerless. As long as the CPAA exists the committee has discussed, in and outside our annual meetings at the EAA conference, the need to become more political active and more organized. Yes, as individuals we can achieve great results in influencing politics and decisions. But the general consensus over the years within CPAA is that we need a constant and structural stream of actions to influence laws, regulations and decision making in the field of Cultural Heritage at the seats of power in Europe. Individuals and national associations on their own will almost certainly not be able to operate with great effect on this stage. To achieve this structural influence, EAA seems an excellent possibility and “tool.” In the last year it seems that the organization is moving towards a more active political role.

What would be needed to enhance EAA with a successful political machine? What would EAA need to fulfil that role? How would CPAA and other committees and working parties need to evolve to make this possible? This presentation would like to explore the opportunities for a European Network ofarchaeological associations with EAA as an overall body.

TH3-07 Abstract 05
Working Party (WP): Integrating the Management of Archaeological Heritage and Tourism
Author - Williams, Annemarie, Amersfoort, Netherlands (Presenting author)
Keywords: archaeology, tourism, Public, private, working party, EAA
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 certain topics the agenda of the EAA; to create a dialogue amongst the EAA members and with representatives from other relevant disciplines outside the Association if we don’t want our comments to remain unnoticed in an “archaeological vacuum”. The WP could form a link to the outside world, a mouthpiece on certain topics that are important for archaeology but relevant to other disciplines as well. A WP can make connections and control the topic within the expanding organization of the EAA. It is clear that with the growing number of sessions and papers the scientific and local organizing committee don’t have a clear oversight. It would be interesting if the WP could form two-way bridges where information on specific topics can be brought outside our EAA bubble, and other ideas and thoughts can also reach us, always with the archaeological interest at heart.

Our WP explicitly invites participation and input from all stakeholders that are involved in archaeological tourism and strongly support a multi-disciplinary approach. 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 concerns archaeological tourism.

TH3-07 Abstract 06
Public archaeology is a martial art
Author - Dr. Richardson, Lorna-Jane, University of Umeå, Umeå, Sweden (Presenting author)
Keywords: public, archaeology, UK
Presentation Preference - Oral
Public archaeology in the UK deals with politics, power and inequalities, and aims to explore the impact of archaeology in present day social and political landscapes. Can this work in practice during a period of unprecedented cuts to government budgets covering heritage issues? This paper will explore how our work affects political decisions and whether archaeology be used as an instrument of policy and politics. Can political activism be part of our professional work, and is this ethical?

TH3-07 Abstract 07
EAA and Politics: role and potential of the non-permanent Working Parties and Committees
Author - Dr. Huglin, 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 Members Business Meeting. Some of them even report on their Round Tables in TSEA.

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 historically been closely intertwined with the disciplines of archaeology and anthropology. But has our focus on the long-term caused us to unwittingly shape a unilinear, technologically deterministic picture of the past? And is there something to be learnt from the parts of the story which have been pruned from this evolutionist model?

The papers presented in this session will explore examples of how our pattern-seeking approaches have excluded interesting aspects of the story of the relationship between humanity and technology, and the methods by which we can reinterpret these. We argue in favour of complexity (but not as a rule), of the little details which can enrich or subvert archaeological grand narratives, while acknowledging that the latter are also an integral part of our discipline.

This session is intended to stimulate discussion of our current approaches to the archaeology of technology, and to consider ways in which they can be developed in order to inform broader theoretical and methodological developments.

Keywords:
- Archaeometry, Technology, Theory
- Oral

TH3-08 Abstract 03
Documenting the microscale of pottery technology in large samples

Author - PhD candidate Pappalouannou, Anna, Aristotle University Thessaloniki, Thessaloniki, Greece (Presenting author)
Co-author(s) - Kotsias, Kostas, Aristotle University Thessaloniki, Thessaloniki, Greece
Co-author(s) - Urem-Kotsou, Dushka, Demokritus University of Thrace, Komotini, Greece
Co-author(s) - Chondrogianni-Matali, Aneli, Ephorate of Antiquities of Kozani, Kozani, Greece
Keywords: forming techniques, Neolithic technology, pottery
Presentation Preference - Oral

Regarding the forming of pottery from Greek Neolithic sites, it is broadly characterised as handmade. Apart from this general statement about the technology of Neolithic pottery, little discussion has been made of the specific shaping techniques.

The poster will present the ongoing study of forming techniques on large samples of pottery from two early Neolithic sites in Western Macedonia, Greece, namely Varemenoi Gouteni and Roditsa Palenmbal, which are dated at 6430-5670 and 6220-5900 BC respectively. The techniques are studied macroscopically, based on attributes of the vessels’ surfaces, section and fracture that are considered diagnostic traits of the different primary shaping practices. The aim is to explore the vessels’ building in detail within the pottery assemblage of each settlement and to compare the techniques used by the potters of the two sites. The technological traits will be compared to the common typologies of pottery based on vessel form and ware.

The study so far has shown the variability within and between the settlements in the microscale of performing the basic forming techniques, but also the common practices used in the neighbouring sites. So, the focus on the details of the shaping techniques gives us insight to the communities, enriches our understanding of the Neolithic potters and their practical knowledge, and points to a more complex picture of Neolithic technology.

TH3-08 Abstract 04
Lost and Found: The Complexity of Find Contexts and the Technology of Bracteate Breakage

Author - Prof. Wicker, Nancy, University of Mississippi, OXFORD, MS, United States of America (Presenting author)
Keywords: metal technology, Migration Period, Scandinavia
Presentation Preference - Oral

Find locations of Scandinavian Migration Period (5th- and 6th-century CE) gold pendants known as bracteates typically identified as burials or hoards. One of the grand narratives of bracteate scholarship is that mapping the find contexts leads to obvious interpretations, with earlier hoard finds in southern Scandinavia and northern Germany, and later grave finds around the periphery of this area from the island of Gotland, to western Norway, England, Normandy, and across Central Europe. However, the distribution patterns are not immutable, and single finds of these objects outnumber the find locations (not the overall number of specimens) of those recovered from burials and hoards. Dracks in the tidy categorisation of find contexts have been begun to appear. In England, where bracteates are typically found in graves, a hoard was recently discovered at Britham in Norfolk. In addition, settlement excavations now complicate the picture. Some bracteates found in settlements may have been deposited purposefully, as in a posthole at Guttime, Denmark, whereas others may have been accidentally dropped.

In this paper, I examine the "little details" and the technology of single finds. I consider whether single finds should be regarded as (very) small hoards, too insignificant or too scattered for us to recognize as what we traditionally consider hoards, or whether they were simply dropped. Our definition of a hoard should take into account the possibility that a single object might beoffer itself slightly or hidden for safe-keeping. However, some single finds of bracteates may have resulted from the breakage of suspension loops and the chains or cords on which the pendants were suspended. Numerous single finds of bracteates have torn or missing loops, and the damage may have been either intentional for ritual reasons or accidental due to technological failure. Heavily "deluxe" bracteates undoubtedly cause more physical stress on pendants and their cords than smaller, lighter pieces, yet as a consequence of their ostentatious quality would be more likely to be noticed and retrieved if dropped. Damage to a bracteate might relegate it to deposition in a hoard since it could no longer be worn in the usual manner around the neck or displayed on the chest of a deceased matriarch in the grave. The technology of jewelry breakage – as well as the corollary of physical and emotional loss – has not been included as a part of the story of bracteates as scholars continue to focus on the dichotomy of graves and hoards. The little details incorporating the technology of manufacture and the agency of individuals confound the former simplicity of a grand narrative as we elaborate on our understanding of the past.
The theoretical and methodological perspectives in archaeology

TH3-08 Abstract 05
Untold Stories About Ancient Survey:
Balbus and his "Expositio et Ratio Omnium Formarum"

Author: M. Ormitz, Alexandru Ioan Cuza University, Bucharest, Romania (Presenting author)
Keywords: Balbus and Caesius, groins and ditches, 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 been always 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 proved 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 Caesar, the work contains numerous data of topographic nature, including the mentioning of certain military survey applications. These latter ones present a particular interest. For example, the determination of the widths of a river that had to be crossed or the height of a fortification that had to be conquered "without venturing within bowshot of the enemy" (M.J.T. Lewis) led to the development of ingenious methods. Although the volume is often cited, the accent on the politico-military conjecture prevailed, to the detriment of the technical information it provided, which was neglected.

Our presentation will analyze exactly these neglected aspects. We will approach Balbus’ text at three interrelated levels. Firstly, we will try synthesis all the mathematical knowledge that Balbus possessed at the time. Then, strictly based on these, we will try to reconstruct the methods and, implicitly, the instruments that might have allowed the performance of the three military survey applications that Balbus mentioned in the text. The reconstruction of the methods and instruments will be integrated in the historical context of the original text, by evoking a contemporary personality, that of Heron of Alexandria, which brought numerous contributions to the technical field, including that of topographic measurements, with his paper Dioptra. Finally, we will try to discover more about the persons behind the analyzed text (Balbus and Caesar), who, most probably, were people outside the upper classes and the governing group which traditionally provided most of the evidence that comes from literature (Brian Campbell 1996).

TH3-08 Abstract 06
Tin presence in Geto-Dacian silver coins as revealed by XRF and micro-PXRF – a possible explanation

Author: Dr. Constantinescu, Bogdan, National Institute for Nuclear Physics and Engineering, Magurele-Ilfov, Romania (Presenting author)
Keywords: geto-dacian coins, silver, tin
Presentation Preference: Oral

Geto-Dacian silver coinage - "Celtic" type starting with Philip II tetradrachms imitations – is active from end of 5th to beginning of 1st Centuries B.C. A spectacular aspect is the presence of tin in these coins starting with 1st Century B.C. It is logic to suppose that tin was deliberately and gradually introduced. The average fineness and the average weight of the issues corroborate the supposition. There is a reduction of the fineness with the time that is specific to almost every Geto-Dacian coin issue. 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 revealed in the history of glass and des monnayages cuivres du Centre-Ouest de la Gaule avant la conquête », 2002, PhD thesis, Université Paris-Sorbonne - coins from 1st Century B.C. emitted by Coriolis having Ag=24%, Cu=66%, Sn=9%, Au=0.1%, Pb=0.05% (medium values), in M. F. Guerra and Ph. Abolivier, "Monetary alloys in Iron Age Amorica: the singular case of the Oasian tribe" - Ag=60%, Cu=25%, Sn=10%, Au=0.4%, Pb=0.6% and in J. Coris et al, "Comparative analysis of a historical collection of Cisalpine Gaul’s coins kept at the Hungarian National Museum", J. Anal. Spectrom, 2015, 30, 730-737, Ag=27%, Cu=68%, Sn=9% (medium values). It is a Celtic procedure generalized in 1st Century B.C. from Bretagne and Northern Italy to Romania? This is the question. A possible "metallurgical" explanation related to 279 B.C Celtic Delphi defeat is discussed.

TH3-08 Abstract 07
"Yes! We’re all individuals!" - I’m not!:
Clusters and the singular in the chemistry of copper-alloys

Author: Dr. Peter, Bray, University of Oxford, Ruislip, United Kingdom (Presenting author)
Keywords: Chemical analysis, copper-alloys, Object life histories
Presentation Preference: Oral

The chemical analysis of prehistoric metal is one of the longest ongoing scientific experiments in the world. Beginning with the pioneers of organised chemistry and archaeology, around 100,000 artefacts from the European Bronze Age have now been investigated. These composition sets are typically interpreted through the lens of grand narratives: the provenance hypothesis, a broad sequence of alloys, statistically lumping analyses into groups, or simplistic routes of exchange. These schemes are increasingly at odds with current archaeological concerns such as the fine-scale performance of identity, value, and the agency of individual people and objects.

The grand narratives are becoming to be transformed from a chemical perspective as well. Recent research at the University of Oxford has emphasised the subtle variations in chemical composition caused by a unit of metal’s unique story. Quants of metal can pass through a number of forms, merge with others, be reworked, used, and decorated over time. Many of these processes will lead chemical and isotopic marks that can be interpreted by comparison with contemporary artefacts. In short we are aiming to develop a system of relative chemical interpretation for copper-alloys. This paper will give a series of cases studies where a fresh look at old data can reveal individual technological and social stories, within the broad sweep of European Early Bronze Age metal use. These include individual workshop choices, rare chemical signatures that demonstrate the production of small axes from recycled daggers in England, and strange local patterns that were caused by melting and recasting centuries old metal in the south of Ireland.
TH3-08 Abstract 09
Digging democracy

Author - Sweden, Stig, Kulturlandskapet, Fjällbacka, Sweden (Presenting author)
Co-author(s) - Ostlund, Anna, Kulturlandskapet, Fjällbacka, Sweden
Keywords: Cooking pits, Environmental archaeology, Sample strategies
Presentation Preference - Oral

Archaeology has been used as part of the history about the national state. Still today this story is being retold, many times uncritically. At the same time we as archaeologist must admit that we also often retell the big linear story. A mound is given higher priority than smaller more insignificant graves, a settlement area with longhouses more than a site with cooking pits but no postholes. By systematically choosing not to excavate peripheral sites, small sites, and temporarily used sites we create a history of central places and big men. This is an undemocratic way of conducting archaeology.

We propose a democratic archaeology, regarding methods, sites and people. In our scientific research programme we decided to focus on the archaelogical 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, Tarum 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 interpret the site as an activity area used for the processing of grain.

The site can be interpreted as a peripheral site (now and then) but important for the society. Peripheral sites are also sites beyond control. In such a place can, for example, subversive thoughts and discussions be performed. This is sites were monuments and mounds won’t be erected, but instead represents other parts of the society.

We want to tell other stories. To be able to do that we need to excavate more peripheral sites and use more diverse methods. More people of the past must be given a chance to be heard. Diversity and variety is an important part of a democratic archaeology. If all voices shall be heard we must also acknowledge them, in prehistory as well as today.

TH3-09 Abstract 01
Building big. Incentives for cooperative action of hunter-gatherers at early Neolithic Göbekli Tepe

Author - M.A. Dietrich, Oliver, Deutsches Archäologisches Institut, Berlin, Germany (Presenting author)
Co-author(s) - Östlund, Annika, Kulturlandskapet, Fjällbacka, Sweden
Keywords: Neolithic, Social cohesion
Presentation Preference - Oral

During the 10th and 9th millennia BC, at Göbekli Tepe in southeastern Anatolia monumental circular enclosures made up of up to 5.5m high pillars decorated richly, mainly with animal motifs, were built by hunter-gatherer communities. One of the important questions regarding this site concerns the way in which small-scale groups joined their forces for constructing a place that clearly is strongly connected to their worldview. The distribution of elements of Göbekli’s iconography evidences a social capital of practical cooperation between groups on local scale or even beyond, since elements of the iconography are also found in the construction of the nearby settlements. The formation and perpetuation of social cohesion was often related to food sharing. Food is not consumed without being socially and symbolically transformed and charged with multiple layers of meaning. Individual daily meals contrast and interact with collective communal activities, like feasting, which are believed to be essential for maintaining the cohesion of societies.

During the 10th and 9th millennia BC, at Göbekli Tepe in southeastern Anatolia monumental circular enclosures made up of up to 5.5m high pillars decorated richly, mainly with animal motifs, were built by hunter-gatherer communities. One of the important questions regarding this site concerns the way in which small-scale groups joined their forces for constructing a place that clearly is strongly connected to their worldview. The distribution of elements of Göbekli’s iconography evidences a social capital of practical cooperation between groups on local scale or even beyond, since elements of the iconography are also found in the construction of the nearby settlements. The formation and perpetuation of social cohesion was often related to food sharing. Food is not consumed without being socially and symbolically transformed and charged with multiple layers of meaning. Individual daily meals contrast and interact with collective communal activities, like feasting, which are believed to be essential for maintaining the cohesion of societies.
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 room houses coexist with ‘special’ multiple-room buildings, singular grinding equipment with whole sets for 'collective' food processing, and isolated vessels with large storage rooms or buildings. The chronological sequence of the architecture and the contexts and evolution of grinding stones suggest a transition from individual to communal consumption and a possible coexistence of social behaviors related to food consumption. Furthermore, the very early production and use of pottery accentuates these processes.

TH3-09 Abstract 03
Review of social structure in the Late Neolithic through the ritual activities and related materials

Author - Dr. Erdem, Deniz, Middle East Technical University, Ankara, Turkey (Presenting author)
Keywords: Late Neolithic, Ritual, Social structure
Presentation Preference - Oral

The Late Neolithic Period is named as Haifa Period in Near Mesopotamia (8000-5200 BC) and it falls between the Neolithic Transition (c.10500-7000 BC), and the Urban Transition (c.4000-2500 BC). Therefore, the time period is traditionally perceived as an important stage in the evolution of central authority and ritual and economic centralization that was the hallmark of the first city-states. The architectural structure and regional settlement patterns usually indicate a non-hierarchical organization that appears to be centered upon extended-households related through kin relations. Yet, it has been difficult to understand how these extended-household groups regulated their social relationships with other groups.

Within an alternative theoretical approach, this study reviews the space-object-person relations of the time period through an analysis of the material culture, related ritual activity and settlement patterns in an attempt to draw a picture of social trends during that period. Following this, the significance of ritual activity is evaluated in context of these trends to understand the patterns of social change. At the same time, ritualized burial of artifacts, places and buildings may be a factor that prevents ‘alienation of objects’ and thus accumulation of personal or group capital. Such perceptions may have also been instrumental in the emergence of new alternatives for recording and manipulating social history.

TH3-09 Abstract 04
Food preparation, commensality and the formation of social cohesion in Late Neolithic Northern Greece

Author - Lymparaki, Maria, Democritus University of Thrace, Eleftheroupoli Kavala, Greece (Presenting author)
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Author - Kotsos, S., Hellenic Ministry of Culture, Education and Religious Affairs, Ephorate of Ant, Thessaloniki, Greece
Keywords: Food preparation, commensality, Late Neolithic, pottery and spatial analysis
Presentation Preference - Oral

This paper focusses on the evidence for collective and domestic solidarity present in Late Neolithic settlements of Macedonia, Greece as revealed by the analysis of cooking pots and cooking facilities from two settlements, Stavroutopoli (Thessaloniki) and Tzouma Kramasti (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 Stavroutopoli provide evidence for domestic production and consumption of food while in Tzouma Kramasti Kolas the context of consumption of food might be on a more public level. Subtle differences and similarities between houses underlie the central role that food preparation holds in forming social ties. Furthermore, the regular presence of pottery in public consumption of food is connected to the formation of social cohesion within Late Neolithic communities. Pottery evidence, offers a powerful tool for understanding the extent to which food preparation and commensality contributes to the communal sense of belonging in Late Neolithic Macedonia, Northern Greece. The paper examines the spatial organization of material culture associated with preparation and consumption of food, as well as the close connections between groups or ‘households’. Based on pottery evidence for the preparation and consumption of food, cooking and commensality contribute to the development of a sense of belonging to a community or to smaller groups within a community. Furthermore, the location of cooking facilities in relation to houses will be taken as an indication of the role of the preparation of food in forming social relationships. Pottery, including cooking pots, and evidence of public consumption of food will be used to illustrate how eating could have contributed to the formation of social cohesion within Late Neolithic farming communities.
Theoretical and methodological perspectives in archaeology

Building and burying together to stay together

Author: Prof. Miller Bonney, Emily, California State University Fullerton, Long Beach, United States of America (Presenting author)
Keywords: collective, Crete, tomb
Presentation Preference: Oral

This paper argues that the construction of collective tombs at the beginning of the Bronze Age on Crete constitutes an example of building and burying to effect social cohesion. At the end of the Neolithic the early population of Crete dispersed across the island, yet evidence for durable settlements dateable to this period, with the exception of the major sites of Knossos and Phaistos, remains scant. Rather, the social cohesion of these clusters of people was promoted through the construction of monumental collective tombs. With diameters of at least five meters the tombs were built of massive boulders the collection and transport of which to the site of the tomb required collaboration and social organization. The first tombs, which would have looked more like mounds than the cylindrical structures often portrayed in reconstructions, evoked the caves in which the Neolithic population lived and buried their dead and some of which remained in use during the Early Bronze Age. Having relocated to areas which lacked caves - and particularly to the southern central part of the island - the settlers recarved 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 settlements that nevertheless remained visually proximate to the cemeteries which continued to serve the role of enhancing social cohesion. This role persisted throughout the Early Bronze Age as the emergence of a more robust built environment evoked the addition of anterooms to pre-existing tombs and the construction of more architecturally defined new tombs. Only the emergence of a supposedly palatial culture at the transition into the Middle Bronze Age supplant these tombs as an important mechanism for social cohesion.

Collective harvesting at Százhalom-batta-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 Százhalom-batta-Földvár yields information on social relations as they show harvesting to be a communal activity, carried out in the power-centre of the Bronze Age chieftain of the Berta valley.

Százhalom-batta-Földvár, Central Hungary is a Bronze Age tell-settlement along the Berta River, at the delta of Berta river. Bronze Age in Hungary is the period between 2800-2700 BC and 800 BC. From this period, Százhalom-batta represent 2000-1400 BC. This archaeological site has important role in the research of Bronze Age in Hungary – and abroad. The excavation of the Bronze Age fortified settlement was carried out within the framework of an international programme that set up in order to examine the differences, similarities and connections between three different regions of Bronze Age Europe. Százhalom-batta-Földvár, due to its size and geographical position, can be considered the head of the Bronze Age chieftain in the Berta valley, according to the model proposed by Earle and Kristiansen (2010). However, detailed research of the site itself is challenging this view. Comparisons of the material culture with other site-types 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 Százhalom-batta-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 reasons for the collapse of their Bronze Age site from the valley (Priskin 2014). This information suggests harvest was a centralised communal activity controlled by Százhalom-batta-Földvár. Thereby, harvesting (and sickles) could have been organised among social relations, and could help to keep alive these associations.
TH3-09 Abstract 13
Ritual feasting as indication of social cohesion?
A late Bronze Age case study from Romania

Author - Prof. Dr. Metzner-Nebeaici, Carola, LMU Munich, Munich, Germany (Presenting author)
Co-author(s) - Prof. Dr. Nebeaici, Louis, Kardynal Stefan Wyszyński University, Warsaw, Poland
Keywords: ritual, feasting, Bronze Age, cohesion, competition
Presentation Preference - Oral

The talk will focus on ritual feasting in the late Bronze Age site of Lapus in Northwest Romania. As a result of an international excavation and research project (Chair for Pre- and Protohistory, LMU Munich, Germany; Maramures County Museum in Baia Mare, RO; Archaeological Institute, Karolynch Stefan Wyszyński University Warsaw, PL) a monumental, multi-part multi-building was uncovered. In each phase a large hall with a central hearth was deliberately destroyed by fire after a period of use and subsequently covered with a clay mantel, on top of which the next hall was erected. Outside those buildings large quantities of pottery vessels of various functions – ranging from storage vessels to delicacy cups - have been found. We interpret them as the remains of feasting events of a larger group of people. In accordance with the common interpretation of feasting like creating group identity and cohesion within society we also see oppositional aspects represented in Lapus. As a result of excavations in the past and recent surveys within the project several contemporary or supposedly contemporary barrows with traces of comparable structures were detected. Thus ritual feasting in Lapus may also have functioned as means of competition among different families and an indicator of social distinction and a display of wealth and power.

The paper will address aspects of ritual behaviour on a theoretical as well as evidence based level.

TH3-09 Abstract 14
Do swords make warriors? Identity & cohesion among armed individuals in the European Bronze Age

Author - Notoff, Jens, German Archaeological Institute, Berlin, Germany (Presenting author)
Keywords: Bronze Age, swords, warriorhood
Presentation Preference - Oral

With the rise of the Bronze Age in Europe it seems that the sword as new and innovative weapon suddenly became assigned an importance beyond its mere role as armamentarium. A specialised group referred to as elite warriors in research tradition seemed to have been drawn a certain status from their peculiar role within a social system developing complex group identities and heavily drawing on cohesive communities. In the course of this paper the warrior's sword will be discussed as tangible (yet not exclusive) manifestation of such a group identity – apparently uniting (and dividing?) different levels of (functional) role and (social) status of Bronze Age warriorhood with a closer look at the weapon's changing expression in funerary ritual and deposition.

With the increasing wealth of evidence we will also further explore the emblematical role of the sword symbol (respectively its substitutes) in the (social) status of Bronze Age warriorhood with a closer look at the weapon's changing expression in funerary ritual and deposition tradition of the Nordic Bronze Age. In the end the emblematical role of the sword symbol (respectively its substitutes) in the constitution of group cohesiveness among individuals armed with and represented by a sword in Bronze Age Europe will be further explored.

TH3-09 Abstract 15
Social cohesiveness as concept of habitus through the lens of archaeological record

Author - Pape, Eleonore, German Archaeological Institute, Frankfurt am Main, Germany
Co-author(s) - Uhl, Regina, Eurasia Department of the German Archaeological Institute, Berlin, Germany (Presenting author)
Keywords: 3rd Millennium, habitus, social cohesion
Presentation Preference - Poster

Social cohesion can be expressed, created and maintained through a variety of ritualized and/or performative events which can respectively involve different group constellations that constitute society.

Following Bourdieu's concept of fields and habitus, we choose to focus on the entanglement and juxtaposition of different group identities at different levels, expressed through distinctive sets of material culture and features. Our experimental approach shall be applied to various case studies of the 3rd millennium BC in Europe from a cross-border macro-level to a multitude of local micro-scale units.

TH3-10 Abstract 01
Linear Pottery houses and their social context

Author - Dr. Zych, Renata, Błędowa Tyczynska, Poland (Presenting author)
Keywords: houses, Linear Pottery, society
Presentation Preference - Oral

The population of Linear Pottery culture constructed stave houses in a rectangular fashion. They were not only in large settlements, but small settlements as well, consisting of one house and few related utility features. The construction of the houses was noticeably uniform.

The architecture of the houses depends on technical ability, but also on the cultural traditions of a given social group. The house is suited to people from that particular group, and therefore must materialize the group's common thought images that form the basis of its identity. Outlined here is the problem of the house as a phenomenon of forming society. Subjects of study included Linear Pottery houses in the territory of Poland.

TH3-10 Abstract 02
Ancestral Homes: Household Biographies in Late Iron Age Scotland

Author - Dr. Baxter, Lindsay, University of Bradford, Halifax, United Kingdom (Presenting author)
Keywords: Biographies, Iron Age Scotland, Roundhouses
Presentation Preference - Oral

This paper presents the results of biographical and materiality approaches to the study of a group of well-preserved Late Iron Age houses at Brotmough in south-east Scotland. The roundhouses display variety of different forms and fabrics, and indicate the idiosyncratic nature of buildings which were far more than a passive backdrop to everyday life. Certain of the roundhouses, particularly those constructed in stone, demonstrate frequent and unusual developmental sequences and complex life histories, which were punctuated by special deposits. These modifications took place in a generation 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 renegotiation of household identity in later prehistoric Europe, as glimpsed through various ethnographic examples in the more recent past.

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TH3-10 Abstract 03

Household Archaeology in a small scale house in an early byzantine settlement

Author - M.A. Steinborn, Miriam, Römisches Germanisches Zentralmuseum Mainz, Mainz, Germany (Presenting author)

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 Aedificiis of Procopius which existed for merely 90 years. Without any marks of earlier or later occupation, the excavations provide unique data in this part of the Balkans in the 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 archaeobiology and soil science. The finds indicate a habitational function. The interpretation of the building bases on the results of interdisciplinary research. The simple configuration of the house and the multiplicity of potential types of use in a single room structure challenge the examination. It raises the question whether it was a complete household or not. This is the crucial point where field work and the theories of Household Archaeology come together. Working with an elementary constructed house and a few objects connected with specific activities restrict the possibilities which houses with many rooms and outdoor-areas may provide. Therefore the preliminary results of the excavation will be discussed from the perspective of Household Archaeology.

It is necessary to examine the activities in- and outside the building to understand the function the household fulfills in the settlement. The households will tell us about the social structure of the people who belonged to an average or low social stratum. Taking their perspective on the settlement raises the question of their mentality and their everyday life. The household can be seen as the place where social roles are negotiated and thus as a social landscape which reflects the mentality of the dwellers. The analysis of installations and furnishing shows that the most important 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 occur 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 no specific 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.

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TH3-10 Abstract 04

Pottery as personal belonging in a Clarisses convent in Vilnius

Author - PhD student Urbanaitė-Ubigė, Miglė, Klėpiaus University, Klėpiaus, 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 unidentified scratches are found from the 17th and 18th centuries in 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 interpretation that nuns and monks possessed their own ceramic dishes while in most cases private property was forbidden. In a convent of Clarisses in Vilnius CHI Town (Maironio street 11) 10 fragments of marked ceramic dishes from the end of 17th to beginning of 18th century were uncovered during the excavations in 1994 and 2007. These dishes had only marks of letters which were identified as initials of the nuns. Historic data of this convent allowed to identify few names and some initials were associated with two or more nuns.

It is known that no personal property was allowed in this convent as well as leaving the territory was also forbidden. This convent can be assessed as a private household with its own specific rules and domestic life. While no personal possession was allowed the presence of marked pottery is intriguing. These fragments can be interpreted as personal belongings. Dishes could be used for personal hygiene rituals or as a prevention of infectious diseases. There is also a possibility that some nuns had their specific diet requirements and some of the dishes could have been used for serving them food.

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TH3-10 Abstract 05

House and Household – an archaeological approach

Author - PhD Thageesson, Göran, Swedish National Museums, Linköping, Sweden (Presenting author)

Keywords: early modern period, household, houses

Presentation Preference - Oral

The household is commonly identified as a fundamental element of social organization in past times. In archaeology, the household has often been regarded as an essential level of research, in order to bridge the gap between grand theories of cultural change and the practical archaeology on the ground. Theoretical discussions as well as analyses based on empirical observations now tend to take place in dynamic interactions where the household is understood as being always, 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, production and consumption is confronted with the household as ideology, discourse and manifestation. The relationship between the physical house and the household as a social unit is no longer evident and has to be discussed.

In my paper I will discuss the possibilities to combine a vast bulk of archaeologically documented urban buildings from the 17th and 18th centuries in Kalmar, Linköping and Örebro with detailed accounts of the households, the owners and the inhabitants. The relations between the households will be analyzed in comparison with the building structures within a theoretical framework of actors and agency. The main focus is how to develop the analyses and understanding of households as function and structure in past times, and the relationship between houses and households, as for example through deeper cooperation between historians and archaeologists.
In the last two decades the history of archaeology has changed beyond recognition. Long gone are the days when a look at the past of the discipline was only undertaken on the basis of publications and archival memories and limited to building an account of the main discoveries and events. The much wider variability of perspectives that historians of archaeology are employing today is also related to – and indeed in many cases requires – a change in the methods once used. Taking advantage of archives as a concept and by combining various types of archival materials, we can redefine the archive as a resource and gain a new perspective on archive-based research.

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 conceptualization and use(s) of archives. The importance of archives for archaeological research and field practice is undisputed in present-day archaeology. Nevertheless archival sources are often neglected and/or underestimated. Archives are essential for historians of archaeology, but at the same time they are also invaluable for the everyday practice of archaeologists. The process of archiving is one of the most important features of archaeology and it has had a great influence on the professionalization of the discipline. However, various archival aspects are often overlooked. For example, it has been common practice to separate documents and artifact collections when archiving when they should in fact be included in the archives together as equally important archaeological data. This greatly impacts anyone who studies the past of a particular site, biography of an archaeologist and we also encourage broad-based humanistic views and interdisciplinary perspectives on archives. By exploring the archive as a concept and by combining various types of archival materials, we can redefine the archive as a resource and gain a new perspective on archive-based research.
Archaeology and the archive occupy similar metaphorical space. Both are regularly invoked as specific modes of historical presentation preference. Following historians of science, Nathan Schlanger has argued that, “To reach the science in the making as much as the ‘archaeology’ – we create histories of archaeology that destabilize boundaries between the ‘historical’ and the ‘archaeological’.”

Archaeology, because it is material, is multitemporal. But archives – the sources of “historical” work – are, themselves, material – and they are a highly ideological way and transformed the site, in many cases without allowing for the possibility of detecting those changes. In this research, I experienced archives “as a source” and “as a subject”. They were “a source” in the case of the so-called ‘Amphitheatre’ and in that of the sewer system, many incorrect hypotheses were formulated, without “laws” (to re-organize my research). But, more importantly, with Derrida’s notion of the archive, I realized how archives can be discussed as a translation process based on the interaction between “the site” and “the copy” (ibid.: 237–239). In 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).

The importance of archives will be illustrated by means of the case study of Veleia, a Roman settlement located in the northeastern part of Italy. The site was discovered in 1747, when pieces of the famous Tabula Alimentaria Veleia were unearthed by chance. Such a long history – which consists of moments of excavations and restoration, followed by periods of inactivity – led to many undocumented changes, even to the planimetry of the buildings, due to restorations conducted without modern methods and cautions. Some restoring operations were undertaken during the excavations, in order to preserve the archaeological remains. Other restorations took place in the first part of the 19th century, due to the work of the architect Giovanni Antonini, and in 1950s, promoted by local tourism authorities, in order to make Veleia more attractive to tourists. Those interventions were conducted in a highly ideological way and transformed the site, in many cases without allowing for the possibility of detecting those changes. In these, case archives are fundamental to accurate reconstruction of the history of the monuments and the changes they have undergone, as well as to proper planning of archaeological research and interpretation of data. Two examples of these will be found in Veleia, where deep archival studies have long been neglected, leading to incorrect interpretations of archaeological remains. Both in the case of the so-called ‘Amphitheatre’ and in that of the sewer system, many incorrect hypotheses were formulated, without attention to the archive. A new archival study undertaken by the author allowed the planning of well-oriented, direct (exploration of the sewer system) and indirect (geophysical prospection) investigations, and thus promoted greater knowledge of the site of Veleia.
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 of discovering Cyrenaica enables us to capture and follow significant stages in the evolution of archaeological interests, pursued by scholars active both on the sites and behind their desks. However, this story could not be fully understood if deprived of the broader, political and social perspectives. From the beginning of the 19th century, when archaeological activities ceased to be purely private ventures, public authorities used archaeological travels to achieve their own purposes, including non-scientific ones. The first topographical identifications were 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 art of discovering Cyrenaica enables us to capture and follow significant stages in the evolution of archaeological interests, pursued by scholars active both on the sites and behind their desks. However, this story could not be fully understood if deprived of the broader, political and social perspectives. From the beginning of the 19th century, when archaeological activities ceased to be purely private ventures, public authorities used archaeological travels to achieve their own purposes, including non-scientific ones. The first topographical identifications were 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 art of discovering Cyrenaica enables us to capture and follow significant stages in the evolution of archaeological interests, pursued by scholars active both on the sites and behind their desks. However, this story could not be fully understood if deprived of the broader, political and social perspectives. From the beginning of the 19th century, when archaeological activities ceased to be purely private ventures, public authorities used archaeological travels to achieve their own purposes, including non-scientific ones. The first topographical identifications were 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 art of discovering Cyrenaica enables us to capture and follow significant stages in the evolution of archaeological interests, pursued by scholars active both on the sites and behind their desks. However, this story could not be fully understood if deprived of the broader, political and social perspectives. From the beginning of the 19th century, when archaeological activities ceased to be purely private ventures, public authorities used archaeological travels to achieve their own purposes, including non-scientific ones. The first topographical identifications were 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 relationship between archive documents and archaeological material of a naval conflict
Author: Mäkinen, Johanna, University of Helsinki, Sipoo, Finland (Presenting author)
Keywords: naval conflict, wreck sites, written documents
Presentation Preference: Oral
This research questions the role of archive documents in conflict archaeology. The second naval battle of Svenskaund took place on 9 July 1790 on the south coast of Finland, outside the modern city of Kotka. The battle was part of the Russo-Swedish War (1788–1790), and it is the largest naval battle ever fought in Northern Europe. The focus of this research is the apparent contradiction between archival documents about the battle, and existing archaeological material. The general view, based on written sources, is that a large number of the vessels of Russia’s rowing fleet shipwrecked near 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.

Endangered Archaeology in the Archives: utilizing historical aerial photography to assess heritage
Author: Banks, Rebecca, University of Oxford, Oxford, United Kingdom (Presenting author)
Keywords: aerial photography, databases, heritage under threat
Presentation Preference: Oral
The Endangered Archaeology of the Middle East and North Africa (EAMENA) project aims to locate, document and monitor archaeological sites and any damage to those sites in an online platform for the Middle East and North Africa region utilizing remote sensing and networks of professionals. The threat to archaeological sites due to political and social upheaval in the MENA region has drawn much attention and is being effectively monitored remotely by a number of projects, but the more gradual threats to sites from development and agriculture over the last century are less well documented. Historical aerial imagery collected from the first half of the 20th century 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 utilise 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 (Presenting author)
Keywords: archaeology, digital, publications
Presentation Preference: Oral
The theoretical and methodological perspectives in archaeology
The Society of Antiquaries of Scotland has been publishing since 1780 and has produced the Journal Proceedings of the Society of Antiquaries of Scotland (PSAS) annually since 1851. These volumes provide a record of research excavations, rescue excavations, archaeological surveys, studies of objects, overviews of historical records, publication reviews and more. Physical copies of the Proceedings are sent every year to Fellows of the Society as well as to libraries and institutions across the world. In 2001, the Society began scanning our PSAS archive and since 2003, PDFs of papers more than a year old have been available to view freely online via the Archaeological Data Service (http://archaeologicaldataservice.ac.uk/archives/view/psas/index.cfm). Since 2011, users have downloaded PSAS articles more than 386,000 times. We also host the full text of our out-of-print monographs and Scottish Archaeological Internet Reports (SAIR) with the ADS. The sheer amount of archaeological knowledge that our publications provide makes it an indispensable resource for anyone studying the history of antiquarianism and archaeology in Scotland, as well as a treasure trove of detailed information on archaeological sites and artefacts. As these publications cover hundreds of years of research, thousands of different objects and sites and hundreds of authors, their single common link is often the Society itself. How can the Society best use its own heritage and archives to inform future work? One of the research projects of the Society is the Scottish Archaeological Research Framework (ScARF). This free-to-use online resource (www.scottishheritagelab.com) summarises what the acknowledged experts in their fields – not only archaeologists but also those in related disciplines such as geosciences, environmental sciences, history and museums – thought about Scottish archaeological knowledge at the time of the first reports in 2012. The work is divided by time period and each period ‘panel’ made a series of recommendations for future research. Now, in 2016, the panels are beginning work on the next version of these reports. This will mean that the 2012 reports become, in effect, an archive themselves. One of the challenges moving forward will be to ensure that as the first set of questions posed are answered, that the archaeological knowledge that led to them are not forgotten or archived so that in the future, contemporary trends and lines of thinking can be studied. It is planned that the new reports will contain links to more of the raw data and archives used in their creation and it is possible that many of these data and archives will be available online. However, the ability to view these will only be a useful addition if they are openly accessible. The Society has a privileged position from which to think about the long-term survival of our archaeological heritage as it has been around since 1780 and, as long as there Fellows with an interest in Scottish archaeology and history, will remain for the decades and centuries to come. How can we ensure that our rich history and archives will remain visible and relevant for as long as they are needed?

TH3-11 Abstract 18
Ancient inscriptions and digital archives: offering an undeciphered script to the public
Author - Dr. Tomas, Helena, University of Zagreb, Zagreb, Croatia (Presenting author)
Keywords: 3D scanning, ancient inscriptions, digital archives
Presentation Preference - Oral
Creating databases with digital archives of ancient inscriptions has become customary over the past decade. Digital databases of cuneiform tablets are particularly popular, and thanks to advanced digital technologies, especially 3D scanning, thousands of cuneiform inscriptions can now be freely browsed through by both specialists and non-specialists, meaning that they have become easily accessible to anyone interested in studying them. Yet, there are many inscriptions in other ancient scripts that still await a similar treatment. One such script belongs to the realm of the earliest European literacy: Linear A, used during the Minoan civilisation and still undeciphered. A digital archive of clay tablets inscribed with this script is still non-existent, but hopefully such a state of affairs is soon to be changed. By taking Linear A tablets as a case-study, the paper presents various aspects of how our understanding of ancient inscriptions can be improved by using their 3D images. Previously used plaster casts, photographs, drawings and text copies of tablets have not proved accurate enough, especially when it comes to analysing various physical features of tablets. For decades clay tablets were treated as secondary to inscriptions they carried, and it is fairly new to approach those documents as archaeological objects themselves and pay full attention to their physical properties. Studying those physical properties is nearly impossible from conveniently published corpora, whereas access to actual tablets is limited to a small circle of specialists (and even they sometimes face obstacles, such as the fact that relevant inscriptions may be scattered around the world, musealised, either displayed behind glass in museum galleries, or locked away in museum 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 Linear A tablets, achieved by creating their digital databases, and will also reflect upon how such a digital database could draw a much greater interest of public to this undeciphered script. For the simple reason of inaccessibility to its tablets, crowding-out is automatically excluded from the field of Linear A studies – an important thing to keep when reminding ourselves that a successor to Linear A – the first known Greek script called Linear B - was deciphered by a non-specialist.

TH3-11 Abstract 19
An essential documentation from the A. D. Archive of Rome to throw light on archaeological issues
Author - Vecchiome, Alessandro, Sapienza - University of Rome, Rome, Italy (Presenting author)
Keywords: archive, Hadrian, Rome
Presentation Preference - Poster
In the era of MDAS (Massive Data Acquisition Systems) applied to archaeological sites the battle between the so-called “old” and “new” research methodologies and data recording techniques is burning up. But at the moment there is still something invisible even to the best-advanced tools: the traditional data archives. Thinking as a human being is unavoidable to unlock this large number of items we need to use.

The Historical and contemporary Archives of the Soprintendenza agli Scavi e Monumenti della Provincia di Roma was created in 1790, just a day after the Porta Pia breach and the conquest of Rome by the Kingdom of Italy. The first purpose of the archive was to record all the activities connected to archaeological findings: defending remains and monuments inside the Aurelian Wall and in the wide Lazio countryside asked for, obviously, a huge effort from such a young office.

The author of this paper had different chances to study Emperor Hadrian’s properties; the BA thesis was on Salvatore Aurigemma’s archival fund that provides a huge data about the excavation and safeguarding of Villa Adriana during and after WW1. The MA thesis was on the Gardens of Sallust and offered a new reconstruction of the morphological and structural context of it. In that specific topic the archive was very helpful in providing data for understanding the topographical aspects of the ancient property; moreover, in the archive we can find the correspondence between the Soprintendenza and the private owners of the area and the following legal dispute. Nowadays, the Historical archive of the Soprintendenza Speciale per i Collioesi, il Museo Nazionale Romano l’Area Archeologica di Roma is under the responsibility of Alessandra Capodiferro. It’s housed in the National Roman Museum at Palazzo Altemps. The museum and the archive are nowadays strongly linked to each other and to the territory they cover.

The Archive and also its website (http://archeo.roma.beniculturali.it/ada, Archeological Data Archive), created in 2004 by Federico Filippi and Lucia Attilia, is a public cultural place intended for the community. The temporary shape of the office is being developed within (and by) the Soprintendenza of Rome within the “Service of Historical Archives”. The ADA is intended for scholars of Roman archaeology and it has become a meeting place of knowledge sharing and exchange. For that purpose the website hosts a huge number of online data such as the “excavation report”, e-book and, soon to be published, the iconographic collection.

The author of this paper was involved in a nearly two-year long work, supporting the activity of archiving and digitizing data into different DB systems. The aforementioned case studies are helpful examples of the role of data archives in present-day archaeological research process.

TH3-11 Abstract 20
Archival sources and archaeological research: documents for rediscovering antiquity
Author - Dr. Rustico, Letizia, SS-Coi, Rome, Italy (Presenting author)
Keywords: Archaeology, Archive, Reconstruction
Presentation Preference - Poster
The documentary material held in historical archives is a vital starting point and accomplishment for scholars wishing to carry out research on archaeological topics and especially on ancient topography. For the city of Rome the valuable evidence in archives reflects work towards antiquity, started in the 16th century by the Papal State and continued by the various institutions that succeeded one another in this institutional task. The available sources – writings, drawings and photographic images distributed among different archives – document the archaeological remains discovered during the intense activities of urban transformation. Sometimes these are the only clues for reconstructing ancient and no longer extant contexts, allowing to recover important information. Today information technology allows us to incorporate this type of information into Geographic Information Systems with a good degree of approximation, to map it and support the use of data through structured databases and specially developed graphic models. To illustrate this we will show some examples from the Aventine hill archaeological sites, rediscovered thanks to archival research: a stretch of the Servian Wall in Via Ilici; the frescoed domus in Largo Argo VII, s.c. Casa Balassà, tute queries; remains underneath the FAO building.
TH3-12 HOW TO MAKE A FIELD SCHOOL WORK: MANAGING ISSUES, DANGERS, OPPORTUNITIES

Friday, 2 September 2016, 09:00-16:00
Faculty of Philology, Room 114
Author - Bernt, Eduardo, UCL, London, United Kingdom
Co-author(s) - Di Felice, Patrizio, Roma, Italy
Co-author(s) - Miazekew, Ann, University of Kent, Canterbury, Kent, United Kingdom
Co-location - Nicola, Agata, University of Wrocławy, Wrocław, Poland
Co-author(s) - Vecchiet, Costanza, Durham University, Durham, United Kingdom
Co-author(s) - Sposito, Francesca, University of Padova, Padova, Italy
Co-author(s) - Cesare, Giulia, Università di Trieste, Trieste, Italy
Co-author(s) - Di Felice, Patrizio, Roma, Italy
Co-location - Bedin, Edoardo, UCL, London, United Kingdom
Co-location - Balco, William, University of North Georgia, Dahlonega, Georgia, United States of America (Presenting author)
Co-author(s) - Perez-Juez, Amalia, Boston University, Madrid, Spain (Presenting author)
Co-author(s) - Dr. Perez-Juez, Amalia, Boston University, Madrid, Spain (Presenting author)
Co-author(s) - Elle, Ricardo J., Boston University, Boston, United States of America
Co-author(s) - Langitz, Meredith A., Boston University, Boston, United States of America

Keywords: Archaeology, Field school, Instructional research
Presentation Preference - Oral

Archaeology Field School is supposed to be a training environment for students who aspire ultimately to become archaeologists, but is it the right place? Archaeological projects have faced for many years now an increase in field school offers, the majority of them asking students to pay a fee or tuition for joining the field school where they would be trained by professional archaeologists. Very often these projects ask for very high fees which students cannot always cover, consequently forcing them to search for some other training opportunities.

What are the reasons for such high fees? Do these high fee projects train better archaeologists than other archaeological fieldwork? What is the best technique to build up a successful field school project? What expectations do student have when they apply for a field school? Should field schools be led by universities, non-university institutions, or partnership between the two? Would a management plan and a business plan help to provide a better working place for all the parties involved?

The primary purpose of this session is to analyse archaeologists’ working methods on developing a successful field school, with the aim of answering the questions above. The discussion should focus on issues encountered during the development of projects and on means for providing the best training for archaeology students, where the focus should be placed on improving their skills in a limited time-span, but also reducing the costs of running the field school.

The ultimate purpose of this session is to provide the base for further improvements in the creation of effective and well-organized projects, which can turn archaeology students into actual professionals on archaeological sites.

TH3-12 Abstract 01 From Office to Field: Developing University of North Georgia’s Sicilian Archaeological Field School

Author - Prof. Balco, William, University of North Georgia, Dahlonega, Georgia, United States of America (Presenting author)
Keywords: Engaged archaeology, Field school, Instructional research
Presentation Preference - Oral

Archaeological field schools are the primary means to expose students to their first excavation and to train future generations of professional archaeologists. During these programs, students are engaged in experiential learning, critical thinking, and cultural experiences. Likewise, the development of an archaeological field school often engages university administrators and faculty in a similar manner, introducing them to the nuances of scientific archaeological fieldwork in diverse settings. This paper discusses the challenges faculty and administrators must face together when developing an international archaeological field school. Such programs break the mold of a traditional study abroad program by involving complex logistics, risk management strategies, site locations, course schedules, and learning outcomes. University of North Georgia’s Sicilian Archaeological Field School serves as a case study for the development and implementation of a new international program requiring close collaboration between university, civic, and regional partners. This program blends instruction with research to provide students with a holistic perspective of archaeology. The delicate balance between project goals, pedagogical strategies, logistical challenges, and program costs are explored, proposing a strategy to keep costs low and learning outcomes high. When offered as a study abroad program, such instructional research projects afford students with the skills necessary to pursue careers in archaeology as well as valuable cultural experiences transferable to a broad variety of careers.

TH3-12 Abstract 02 The many meanings of Archeological Education: field schools in archeological heritage management

Author - Dr. Perez-Juez, Amalia, Boston University, Madrid, Spain (Presenting author)
Co-author(s) - Dr. Elle, Ricardo J., Boston University, Boston, United States of America
Co-author(s) - Langitz, Meredith A., Boston University, Boston, United States of America

Keywords: field school, heritage, training
Presentation Preference - Oral

Archaeological Education is going through either a crisis or an expansion; through revision or agony. It very much depends on the observer and the field from which he or she comes. In Europe, archaeology used to be taught solely in History departments. In the United States, it is part of Anthropology or Classics Department. Archaeological Science is becoming increasingly relevant, and techniques in which no digging is involved are preferred by researchers. What about Archeological Heritage Management (AHM)? What is its specific weight and role in this new higher education landscape? AHM is frequently treated as an appositeness 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 experience has been transformative.

Field schools in archeological 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 sponsoring and fundings opened the access to excavation areas to volunteers and non-technician, in love with this job, holding partials or no skills at all, but available to help and enjoy the digging experience in change, sometimes, only of accommodation and meals.

Surely, to some extent, the contribution volunteers gave to archaeology has been wide and important in order to carry on some excavation valued little. But is it safe, both for security and carefulness of the work, replace in the hands of not paid and not formed volunteer the work that should be led by professional archaeologists?

Universities are the first bodies knowing 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 “real” excavations are sponsored by participants, volunteers and crowdfundings, 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 academic 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.

TH3-12 Abstract 04 Through the thin mesh - Bucket flotation in EcoPlis project: 2015 fieldwork

Author - Monteiro, Patricia, I(A)EH/University of Algarve, Faro, Portugal (Presenting author)
Co-author(s) - Matias, Rosana, Núcleo de Alunos de Arqueologia e Paleoecologia da Universidade do Algarve, Faro, Portugal
Co-author(s) - Pereira, Telmo, I(A)EH/University of Algarve, Faro, Portugal
Co-author(s) - Carvalho, Vínia, Cmara Municipal de Leiria, Leiria, Portugal

Keywords: Engaged archaeology, Field school, Instructional research
Presentation Preference - Oral

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This paper is aiming to analyze both the academic 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 are crucial for understanding the past and for guiding archaeological research. The selection and application of these perspectives can significantly influence the outcomes of archaeological projects. In this context, the stakeholders involved—whether they are academic researchers, professional archaeologists, or non-academic scholars—must possess a deep understanding of these perspectives to navigate the complexities of archaeological research effectively.

This paper discusses the construction of the training school at the Alberese Archaeological Project, emphasizing the reasons for choosing a specific method of fieldwork. The project aims to provide fieldwork experience for students while also addressing the challenges of managing long-term projects like the excavation of Abriço do Pego in south Tuscany. The application of the Bucket Flotation method in the 2015’s EcoPLis campaign demonstrated its ease of set-up, fast execution, and intelligibility. However, the paper highlights the need for long-term solutions to ensure the sustainability of archaeological projects.

The archaeological fieldwork school attracts students and early career scholars from all over Europe and North America, including Belgium, Germany, the Netherlands, and Switzerland. The Alberese Archaeological Project provides two different types of training schools. The first school is 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 second school is run by Universities but are increasingly run by private institutions.

Archaeological Field Schools have been very popular in the last decade, and field schools are now a key component of the training of the next generation of archaeologists. The paper draws its conclusions upon the importance of training schools, not only in terms of improving the participants’ knowledge and skills, but also on their future careers in academia or in professional archaeological units. The aim of this paper is to propose means of creating the base for improving this fairly new way of doing Archaeology, which does not only answer the academic research questions but to help students in their first chance of gaining field-work experience and engage the local communities, bearing in mind the financial issues.

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**TH3-12 Abstract 07**

**Silchester Insula IX Town Life Project.**

A good example of management, training and public engagement

**Author:** Edoardo, Bedin, UCL, London, United Kingdom (Presenting author)

**Keywords:** Field-School, Silchester, Students

**Presentation Preference:** Oral

Archaeological Field Schools have been for many years now seen as the suitable environment in which archaeology students can be 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 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-exavication 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...

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**TH3-12 Abstract 08**

To what extent can management skills help archaeological sites in their selfsustainance?

**Author:** Vecchiet, Costanza, Durham University, Trieste, Italy (Presenting author)

**Keywords:** Archaeology, Future, Management

**Presentation Preference:** Oral

Sadly, we are living in an era in which archaeological and general cultural heritage are often downgraded with scarce financial help and bad evaluation of their potential, both economical and educational. Over the last two decades, new types of possible financing (like crowdfunding and small donation from private bodies) have offset the vacuum of state financial assistance – at least in Italy – allowing some important project to be realized even after all.

Nevertheless, it is undeniable this cannot be considered a long term solution, and new perspectives for the maintenance of archaeological sites and cultural areas need to be found out and seriously taken into account.
One of this could be and, in the daily scenario, must honestly be an attempt to self-sustaining by the excavations and of the cultural projects themselves. It is in this renewal air and management reorganization that new Master and specialized courses were born. They are born because of the sector specialists having realized how important it is for the survival of archeology 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 archeology and its future opportunities and possibilities if well managed.

Theoretical and methodological perspectives in archaeology
and public engagement issues and opportunities

Author - Eduardo, 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 so 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-efficiency while managing an archaeological site and demonstrating the need to change the approach to Classic 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?

Drama - Merdzhumekia:
German archaeological field-school in Bulgaria

Author - Velchev, Todor, Regional Historical museum - Yambol, Yambol, Bulgaria (Presenting author)

Keywords: archaeological field-school, Drama - Merdzhumekia, German methodology

Presentation Preference - Poster

The prehistoric settlement mound Merdzhumekia was situated near the village of Drama in the Tundzha municipality, Yambol district. It has been completely excavated during the Bulgarian-German project from 1983 to 2011. The joint project was undertaken by Sofia University "St. Kliment Ohridski" in Bulgaria and Saarland University in Germany. The international project was led by prof. Alexander For, prof. Jan Lichardus, prof. Fransoa Bertemes and Iliya Iliev. The aim of this poster is to present the methodology used by German scholars during the archaeological excavations in the village of Drama. The system permitted students to participate in all aspects of the project: archaeological excavations, graphic documentation and processing of ceramic materials and finds. During the international project, more than 300 students and University assistants participated from Bulgaria, Germany, Czech Republic, Slovakia, Hungary and Luxembourg. Some of them are now leading archaeologists and University professors in Bulgaria, Germany and England.
In this presentation I would like to tell you all about the excavation, but I will not. This presentation will instead be your introduction to the concept of pinboard-archaeology, and during a short workshop I will let you all be a part of excavating the local community through a pinboard at the venue.

TH3-13 Abstract 03
Archaeological carpentry. Doing theory with your hands
Author - Dr. Mikhail Dimitrijev, Institute of Ljubljana, Institute for the protection of Cultural heritage, Ljubljana, Slovenia (Presenting author)
Keywords: art, carpentry, theory
Presentation Preference - Oral
In the introduction to his book “Alien Phenomenology” (2012) Ian Bogost suggests that philosophers ought not just to write philosophy, at least not without practicing, doing, or making. He urges engagement in carpentry: constructing artifacts that do philosophy. This is more than artistic practice, carpentry is a perspective on creative work that asks philosophical questions. Or put in another way, carpentry is what you call it when things (including art) are used or made for philosophical use. I want do explore the use of carpentry as new forms of creative practice in archaeology, playful practice, that can help us to develop and archaeological concepts. I want to explore the use of “philosophical carpentry” using an example from my own work on archaeology of milk (Mikuz 2015). I explore the notion of milk as an assemblage or ecology, using crafted objects. Exploring the relational nature of milk assemblage, I focus on the idea that nothing exists in and of itself, things exists only in assemblages. Things exist and take the form that they do by participating in an emergent web of materially heterogeneous relations. Use of miniatures (of bacteria, enzymes, cows, strainers, lactose, guts, cells, genes, fat, cheese …), all made on the same scale, instead of using words or concepts, allows playful exploration of connections between objects through their material and sensuous qualities. Open-ended practice associating and realising objects creates surprising new assemblages, ecologies and associations and opens ways to new, creative understandings of milk assemblage.

TH3-13 Abstract 04
Creative archaeology of modern Moscow
Author - Doctor Belavin, Leonid, Institute of Archaeology of RAS, Moscow, Russian Federation (Presenting author)
Keywords: archaeological monuments, creative archaeology, modern Moscow
Presentation Preference - Oral
In Russian historiography there is still no custom to regard archaeological excavation as a place for creative extrascientific activity, as well as an archaeological finds obtained in the course of excavation still haven’t been regarded as a piece of art. However, they certainly are. Archaeology spontaneously induces the appearance of art objects, starting with the temporal (video and performances at the 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 cameramen, and certainly more often as a common draftsmen. Finally, in modern cities the archaeologist daily come in contact with the challenge of incorporating the remains of the discovered antiquities into the urban context, also doing his best as a designer. As is well-known, similar forms of correlation between the art and science have been existed before: in the history of Russian archaeology of the XIX-XX centuries there are plenty of examples of cooperation between the archaeologists and artists. The study of these examples could in time become an important direction of the special art research. In the report the results of the author’s observations on the creative approach to the archaeological monuments in Russia would be demonstrated.
Archaeological field schools are viewed as the first port of call for students aspiring to become archaeologists. On top of this, they are often major research outlets for universities and archaeological organizations, and often come to represent the sector on television and in publications. Their position and importance in the sector is well developed and, until now, viewed as well understood.

When starting research on field schools in the UK, confused responses were given to simple questions on definition, curriculum, length, cost, demographic and standards. I subsequently set out to start to answer some of these questions over three stages. The first developed the context, looking at how training in practical archaeology had developed over the last 50 years in relation to the economy, government legislation and the archaeological sector in general. The second addressed the issue of 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. The balance discussions from sections 1 and 2, the final section looked to real data. Drawing from the first database of archaeological field schools in the UK and from a qualitative survey of individuals who attended field schools recently, they offered an insight into the current situation of field schools in the UK today. The response demonstrated a broad confusion over the definitions and expectations of field schools, fuelled by a lacking regularity on the length, demographic, cost and curriculum on offer.

What this research shows is a fundamental area of the archaeological sector which, in the UK and contrary to its academic counterpart, has failed to develop in a way which caters to the demands and regulations required by its participants. In light of the economic difficulties field schools are facing, they are being forced to compromise and develop. It is therefore a perfect opportunity, albeit well overdue, to develop field school as strategic assets for the sector and wider cultural heritage, as well as a fairer environment for those taking part. The data produced and topics discussed in this paper hope to mark the start of this process.

**TH3-13 Abstract 06**

**Visual aesthetic of archaeological practice: a creative approach**

**Author:** Mermel-Martínez, José-Antonio, Arqueología de Guardias Association, Beniaján (Málaga), Spain (Presenting author)

**Keywords:** archaelogical 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 activistic practice to integrate, on purpose, the archaeological works into the citizens’ interests. Taken into account the destruction of social, cultural conventions which are posed by some special visual styles as Street Art and Photo/Video journalism, it is analyzed the creation of archaeological Ethnography to identify visual patterns which belong to the archaeological practice, which transform it into an aestetic of movements, to allow the reflection about the concept of “universality”. This go beyond the Theory and has been applied on practice during a field school of Archaeology done at an official High School of the Spanish State, in Málaga, 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 way to fight the injustice derived from the integration processes at the moment of our societies. This action 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. We strongly believe that the archaeological discipline benefits from interdisciplinary approaches. We believe in co-creation and equality between art and archaeology but still that the different disciplines theoretical framework should be respected. We have made a concept called eScape. Our approach is not theoretical but based on practical projects made on site. The concept eScape is all about combining art, archaeology, past and present - creating and telling art on sites with strong archaeological evidence in combination with the scientific archaeological excavations. The location and the landscape is the raison d’être of the project - and locals as well as tourists are given the opportunity to experience landscape storytelling combined with world history interpreted by modern art.

**eScape brings out art and cultural heritage “on location”, away from the walls of the museum, creating a phenomenological space where nature, art and cultural heritage meet and communicate with one another, giving visitors unique and unexpected experiences.**

Collaboration between specialists in Tourism, Art and Archaeology and combining the three parts on equal terms is crucial, as well as participation from locals and children. Turning people who stare into people who care - and people who dare and share.

**TH3-13 Abstract 08**

**LET Archaeology be Archaeology and Art be Art - and let them tell a story side by side**

**Author:** Bangabe Dising, Nina, Municipality of Skanderborg, Skanderborg, Denmark (Presenting author)

**Co-author(s):** Purup, Marianne, Visit Skanderborg, Ry, Denmark

**Presentation Preference:** Oral

We strongly believe that the archaeological discipline benefits from interdisciplinary approaches. We believe in co-creation and equality between art and archaeology but still that the different disciplines theoretical framework should be respected. We have made a concept called eScape. Our approach is not theoretical but based on practical projects made on site. The concept eScape is all about combining art, archaeology, past and present - creating and telling art on sites with strong archaeological evidence in combination with the scientific archaeological excavations.

**The location and the landscape is the raison d’être of the project - and locals as well as tourists are given the opportunity to experience landscape storytelling combined with world history interpreted by modern art.**

**eScape brings out art and cultural heritage “on location”, away from the walls of the museum, creating a phenomenological space where nature, art and cultural heritage meet and communicate with one another, giving visitors unique and unexpected experiences.**

Collaboration between specialists in Tourism, Art and Archaeology and combining the three parts on equal terms is crucial, as well as participation from locals and children. Turning people who stare into people who care - and people who dare and share.

**TH3-13 Abstract 09**

**Layers of living in layers of time**

**Author:** PhD Synnestvedt, Anita, University of Gothenburg, Gothenburg, Sweden (Presenting author)

**Keywords:** art and archaeology, heritage, theory and practice

**Presentation Preference:** Oral

In 2013 the largest urban archaeological excavation ever undertaken in West Sweden started in the area of Gamlestaden in Gothenburg. The town of “Nya Lötos”, which lay here between 1473 and 1624, is being excavated. The area is set to undergo major transformations. New construction activities with buildings, a new hub for public transport, sidewalks and bike lanes will transform the urban landscape. The archaeological dig is done behind fences. You can have a glimpse of what’s going on, peeping through little openings, but it’s hard to understand - what is happening? You can go for a guided tour, but do you see the connection between now and then? Do the archaeologists care about what’s happening outside the fence while they are digging?

What is present, what is past? How can we explore the environment when space is money? In a workshop arranged in May 2015 archaeologists, musicians, artists and students investigated the environment in Gamlestaden with the aim discovering stories and contexts in the many layers of time. This investigation resulted in a video: Layers of living in layers of time. The purpose and the outcome of the video will be discussed in the presentation.
SETTLEMENT VARIABILITY AND SOCIO-ECONOMIC PROCESS

TH3-14

Thursday, 1 September 2016, 14:00-18:30
Faculty of Philology, Room 114

Theoretical and methodological perspectives in archaeology have been a relevant topic in historical, archaeological and onomastical research, closely or a melange of many factors? Archaeological excavations have increased the amount of source material, which offers an interesting supplement for historical research. However, these have been restricted by the existence of studies based on historical information, which is not abundant or diverse. The meaning of words like urban, village or hamlet are not at all simple and straightforward, and the particularity of given timespace situations is of great importance. In the Early Modern setting the town becomes a kind of ideal, in different ways for different actors, while still being a relatively unusual settlement form.

We wish to develop an analytical approach, which helps to identify similarities, while acknowledging the significance of the variability. When exploring settlements we need a broad range of theories and methods to work with and it is important to avoid initiating the analysis with rigid concepts and models. Instead of departing from simple typologies at the first stage of analysis, it could be more interesting and advantageous to start by tracing several factors, and subsequently look for correlations. It is most likely that such an approach allows for multiple perspectives when identifying socially, economically and/or politically relevant variables.

This session invites papers addressing to settlement analysis, in which variability is taken as an asset, even when looking for the similarities and differences that can be observed between these sites and there must be reasons for that. Were different historical and/or cultural-historical backgrounds give reason for a much more differentiated view on the Husebyer. There are certain similarities under the reconstruction, extension and regeneration of the town? Still, the picture cannot be completed, but could it be made more comprehensible with correlations with other cities?

TH3-14 Abstract 01
Farms, hamlets, villages and towns. Settlement variability in Early Modern Scandinavia
Author - Dr. Rosén, Christina, Åkefalla, Gothenburg, Sweden (Presenting author)
Keywords: Early Modern, Scandinavia, Settlement

TH3-14 Abstract 02
Areas reserved for rich and populated by poor or a melange of many factors?
Author - Dr. Sappânen, Liisa, University of Turku, Turku, Finland (Presenting author)
Keywords: Socio-topography, layout, Turku, early modern, urban settlement

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, Settlement, Spatio temporality

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

In this paper, the relation between research, settlement and the socio-economy of the city is discussed with an example of Turku, which is the oldest town of the present-day Finland and was one of the most important towns of the medieval and early modern Sweden. The first presentations of the layout of the city are from the 1630s and the extent of the establishment and settlement of the town. It took more than 100 years before a map was made in the 1750s with the list of the plot owners including information about their professions and site values.

Tracing the earlier settlement history and socio-economic topography of the town is like trying to compose comprehension about the picture by piecing an old puzzle with only a few pieces that have been spared. The information from the 1700th century and beyond is valuable as such, but how much this information has labeled the conceptions and interpretations about the socio-topography of Turku in earlier periods and on what grounds? The city is a living organism and its past is not stagnant, and the character and dynamics of different parts and remoulding the relations between them on a different scale and bearings. The paper presents answers for the following questions. What elements formed the settlement of Turku in the 16th century and what was the relation of this settlement to earlier as well as to later inhabitation of the town? What kind of picture of events and socio-economic topography can we create with the help of analysis of the existence available by now? What was the relation between the reconstruction, extension and regeneration of the town? Still, the picture cannot be completed, but could it be made more comprehensible with correlations with other cities?
Theoretical and methodological perspectives in archaeology

One of the great challenges inherent in archaeology is the fact that what humans say, and what they do, are very often different things. In the same way, as similar material forms may correspond to different socio-economic phenomena, so may the reverse be true. Deterministic approaches to either as a direct informant of the other are not only reductive, they can more often than not be a logical fallacy. Settlement analysis would be more adequately served by the introduction of a triadic model proposed by Fletcher, in which settlement success is measured not only by a relationship between material form and socio-economic situation, but also by the outcome of their relationships. The case study for this paper will be the initial urban development which took place in the Baltic region during the early medieval period. New and unusual settlements of very similar form, albeit with varying emphases on elements such as ritual, royal power, politics and trade, appear across the landscape between the 7th and 9th centuries CE. This development comes ostensibly in response to the changes happening in Europe after the fall of the Roman Empire, and the establishment of new trade routes from the north seen as a significant contributor both here and in the North Sea region. These Baltic settlements — for which terminology has proven notoriously difficult — mostly exist in their initial form for no more than a quarter of a millennium, before transforming into a more recognisable, high medieval town-like form. This process, however, is variable in its execution. The settlements, among other outcomes, experience destruction, abandonment, conquest, and re-use in conjunction with a younger settlement close by, revealing this particular space-time context as incredibly valuable in exploring the social-material-outcome triad.

Did socio-economic developments change the landscape of Ireland?

The two greatest influences to the socio-economic landscape of Ireland in the early medieval period were the coming of Christianity and then the raiding and subsequent settling of the Vikings in the coastal emporia, such as Dublin and Waterford. But how did these events shape the socio-economic changes at this point? I hope to show that these events were in themselves, the catalysts, rather than the instigators of change.

In the aftermath of the Late Iron Age lull, which ended c.AD300, there was an increase in crop production, the growth is seen in stark contrast to the previous five hundred years or so, which seemed to be a time of stagnant growth. The increase of crop cultivation, as well as the introduction of new technologies, such as the water-mill and the coulter plough, increased production, allowing specialisation and creating a surplus, furthering a division of labour and exchange networks. When talking about the early medieval period in Ireland, one instantly thinks of the ubiquitous ringforts, of which is now estimated, there was as many as 70,000. Despite Stout's estimation that they went out of use after c.AD900, there is no other type of secular settlement found in all areas of the country to populate the landscape. It is possible that although ringforts did not change in morphology after this period, many being re-occupied in the later medieval period, their possible location echoed a change in their function, away from being a cattle pen to being one used to control and exploit the agricultural producers. While some have attributed the inception of souterrains as refugees from Viking raiders, I would view them as drier storehouses for grain and livestock management practices in the Kingdom of Granada

The conquest of the Kingdom of Granada means radical changes in the management of natural and agricultural areas. Consequently, there was a significant retrofitting in term of settlements pattern and territorial organization, to the point of generating a large number of depopulated villages. In the same vein, a rearrangement of populations and a growing process of occupation and marginalization of the rural world is observed, which led to a virulent confrontation between old and new Christians.

A multi-proxy approach on identifying stabilizing patterns in prehistoric times

The identification of stable in prehistoric settlements often depends on exceptional preservation conditions or geochemical analysis of sediments. But it is possible to determine patterns of archetypical features, particular objects and landscape use leading in the same direction? This presentation is dedicated to a multi-proxy approach to establish a method enabling the identification of discernable strategies of animal husbandry and stabilizing. The initial approach is based on excavation examples with extraordinary preservation conditions especially from the northern sea or lake sites with proof of existing or non-existing stabilizing features. But also settlements with inferior preservation can hold evidence of 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 pogan-christianity transition

Author - Prof. Chudziak, Wojciech, Nicolaus Copernicus University, Torun, Poland
Co-author(s) - Dr. Kaźmierczak, Ryszard, Nicolaus Copernicus University, Torun, Poland
Co-author(s) - Prof. Makowiecki, Daniel, Nicolaus Copernicus University, Torun, Poland (Presenting author)
Keywords: Pomerania, Islands, Religion, Slavs
Presentation Preference - Oral

The baptism of Mieszko I, the founder of Polish state, in 966, had been, for the Slavs living in the Odra and Vistula basin, an important caesura between a pagan style of life and the new, Christian one. For a long time, among medievalists and archaeologists, the knowledge on this topic has been based on researched proto urban centers such as Szczecin, Wolin, Kolobrzeg and Gdańsk. So far, little attention has been paid to the centers located on the islands of Pomerania Lakeland. However, since 2004, in the Institute of Archaeology at Nicolaus Copernicus University in Toruń, a research on the significance of these islands in the socio-economic and religious life of Slavs in the times of ideological and political transformation at the end of the 1st and the beginning of the 2nd millennium A.D. has been undertaken. Currently, the research is being conducted in several such places. The Island of Zarańsko, located on the lake Zarasoko, belongs to the better examined ones. In the following paper, the authors will present the selected questions concerning the interpretations of this place according to the religious, social and economic contexts. The results of the interdisciplinary archaeological and bio-archaeological research will be the basis of their considerations.

TH3-14 Abstract 11
Spatio-Demographic Structure and Social Organization: A Linear Trajectory or Overlapping Trends?

Author - Zubrow, Ezra, SUNY at Buffalo, Buffalo Ny, United States of America (Presenting author)
Co-author(s) - Dr. Dachkhen, Aleksandr, Institute of Archaeology of the NAS of Ukraine, Kyiv, Ukraine
Keywords: demographic development, settlement, social complexity
Presentation Preference - Oral

Oversimplified understanding of the general systems theory with its concepts of balance, positive and negative feedback strongly related population growth and increase in social complexity and economy to each other. Meanwhile, recent studies showed disproportions between demographic trends and socio-economic transformations worldwide. Concerning the simulations based upon the Cucuteni-Tripolye settlements and their systems, this paper presents the deep non-linear patterns of demographic development that in many cases may be wrongly taken for specific types of socio-political organization.

TH3-14 Abstract 12
Settlement and Process in Colonial Encounters

Author - Professor Cornell, Per, University of Gothenburg, Västra Frölunda, Sweden (Presenting author)
Keywords: Colonialism, Settlement, Socioeconomic
Presentation Preference - Oral

Discussing two cases from the Americas, the question of settlements and the socio-economic will be addressed in relation to a colonial context, the European conquest of the continent. One case addresses developments in what is today Quintana Roo, Mexico, and the other a case from the Calchaqui river system in today’s Northern Argentina. Questions of relationism and encounters will be addressed, but in particular the relation between settlement organization and the socioeconomic. The potentials of the concept of mode of production, in a new revised version, will be tested.

TH3-14 Abstract 13
Society in flux: Evidence from the middle/late Northern Württembergian Urnfield Culture

Author - Girotto, Chiara, University of Durham, Durham, United Kingdom (Presenting author)
Keywords: Northern Württemberg, stratification, Urnfield Culture
Presentation Preference - Poster

Up to date the society of the Untermain-Swabian-group of the middle/late Urnfield Culture has never been analysed by a combined approach of the spatial and temporal distribution of settlement, hoards, burial patterns (n=701 sites including isolated objects) and grave goods. This case study of Northern Württemberg introduces a new idea about of structure and organisation of society at Ha 2/B1. Furthermore it briefly presents a previously unpublished cemetery of the transitional Ha 2/B1 period at Erkenbach Kreise Württemberg, Germany. Settlement patterns suggest a society whose patterns followed natural resources while settling in close proximity to the most important rivers of the region, the Neckar and Tauber. Although hilltop settlements 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 Erkenbach Kreise Württemberg 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 2/B1 period suggests a society in flux. First obvious differences in grave attire start to exist but the settlement pattern does not suggest any interregional forms of rulership. Instead social organisation on a smaller scale, governed by economic success could have been the starting point, leading to the later presumably hierarchic societies of the Iron Age.
THE ATLANTIC ARC AND ITS NEIGHBOURS IN THE FIRST MILLENNIUM AD: FRAMING NEW PERSPECTIVES

Friday, 2 September 2016, 14:00-16:00
Faculty of Philology, Room A7
Author: Gleeson, Patrick, Newcastle Upon Tyne, United Kingdom (Presenting author)
Co-author(s): O Riagain, Russell, Ruhr-University, Heidelberg, Germany
Keywords: Atlantic, Landscape, Networks
Presentation Preference - Regular session

Taking Europe's Atlantic seaboard as an area of study is by no means adopting a novel perspective, even if the majority of the scholarly community has been focused on a narrower spatial perspective, usually focussing on either a single region, or on immediately adjacent regions. Where a broader spatial remit has been adopted, it has usually been within a cognitively bounded paradigm, with designations such as 'Atlantic Fringe' bearing the imprint of a mixture of Classical bias and more modern social evolutionism. Conversely, the adoption of a neo-Romantic exceptionalist approach to the wider region, emphasizing its uniqueness and unity of shared traits must also be avoided. Therefore, this session will adopt a via media. Papers are sought examining regional similarities and differences, responses to environmental and the movement of people, ideas and things within and between the regions. Furthermore, papers are also sought addressing the ways in which different areas of the arc interacted with their immediate neighbours, both with social mega-configurations such as the Roman and Frankish Empires and on a more micro-political level, either affecting or not affecting cultural change and identity shift. Multidisciplinary papers treating this issue are particularly encouraged, as are papers adopted a comparative perspective, utilising case studies from across the Atlantic Arc. The focus will primarily be on the first millennium AD, but papers may also be accepted from beyond this chronological timeframe, so as to provide further insight by setting the main temporal remit in its broader processual context. Similarly, papers dealing with areas adjacent or otherwise connected to the session's spatial remit may also be accepted to set the Atlantic Arc in its wider geographical context.

TH3-15 Abstract 01
The materiality of early Christianity: stone and the sea in western Scotland
Author: Dr. Macdonald, Adhráin, 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 Christiandom, 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 and material practices affected cultural change and identity shift. Multidisciplinary papers treating this issue are particularly encouraged, as are papers adopted a comparative perspective, utilising case studies from across the Atlantic Arc. The focus will primarily be on the first millennium AD, but papers may also be accepted from beyond this chronological timeframe, so as to provide further insight by setting the main temporal remit in its broader processual context. Similarly, papers dealing with areas adjacent or otherwise connected to the session's spatial remit may also be accepted to set the Atlantic Arc in its wider geographical context.

TH3-15 Abstract 02
Comparing early Christian stone monuments in north-western Europe: movement and identity
Author: Busset, Anous, 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, particularly at the north-western edges of Europe. With Christianisation, carved stones were elevated as a prominent part in the process, by embodying and expressing Christianity as part of identities chosen by elites, and to convey a message of power in the landscape. Both secular and religious elites from north-western Europe commissioned and erected stone monuments in the landscape for a variety of reasons; for example, as a memorial practice, or to convey a message of power over both the people and the landscapes they experienced, inhabited, traversed, and assembled in throughout their lives. The widespread nature of the erection of stone monuments thus lends itself particularly well to a comparative study. By situating these monuments within a macro-scale approach and placing them in a wider context, the individuality of stones, their movement and role within the Christianisation process can be more effectively understood. This paper will thus present early Christian carved stones and rune stones from Ireland, Scotland and Scandinavia using a three-level comparative approach developed in my recently completed PhD thesis, which consists in looking at and comparing the monuments, the landscapes they are erected in, and ultimately their role within the Christianisation process. The theme of movement in the landscape, and how it is created by the presence of early Christian carved stones, will be used as a common thread.

TH3-15 Abstract 03
Self Affirmation: Building new identities through contact and exchange in early medieval Northumbria
Author: Drain, Celia, Grenewich, United Kingdom (Presenting author)
Keywords: borderlands, early medieval Northumbria, funerary sites
Presentation Preference - Oral

Archaeological approaches to Frontier and Borderland can include a variety of dimensions for consideration, from the physicality or invisibility of boundaries, to their rearrangement over time and the ways in which they serve to create concepts of foreignness and enforcing exclusion. This paper focuses on interaction in the early medieval borderland zone of Northeast England and Southeast Scotland, with reference to their British neighbours, and across the Atlantic Arc and North-western part of Scandinavia. This paper explores how populations used the landscape to create and maintain their identity and territories during a time of significant upheaval, in which northern Britain witnessed the withdrawal of the Roman Empire, widespread conversion to Christianity, and the emergence of centralised kingdoms. This is achieved through identifying the succession of conscious and unconscious choices involved in the construction of identity from local thinking to larger scale socio-political aspirations inferred through changes in the composition and setting of funerary sites. Evidence from early medieval burial sites suggests that the Tyne and Forth region was a zone of contact for multiple groups in the late fifth-early sixth centuries. Comparative analysis highlights the contrast between this area and the Atlantic and Northern Arc, demonstrating the existence of intellectual territories and varied local responses from these groups.

TH3-15 Abstract 04
The recreation of identities in the late Iron Age and Roman period in Ireland (AD1-500)
Author: Dr. Wilson, Jacqueline, University of Bristol, Bristol, United Kingdom (Presenting author)
Keywords: borderlands, early medieval Ireland, Romans
Presentation Preference - Oral

In the past various interpretations have been used to explain the evidence of Roman material in Ireland, the likely impact of external cultural influences and the probable adoption and take-up of a shared value system in parts of Ireland in the late Iron Age (AD1-500). The most recently published research used multiple lines of investigation and interdisciplinary methods to explore the Roman material evidence and its distribution across Ireland in this way. Adopting a new approach here - especially one that encourages a via media - frees the author from the prior constraints that limited wider theoretical discourse. In developing an alternative perspective, we can now move forward from the outdated dichotomies that placed Roman and native (or in this case Irish) locals into a state of perpetual opposition. This paper will use local and regional spatial similarities between settlements and society in both Roman Britain and Roman Ireland, and demonstrate where these overlap and are connected over time. Prior investigations by the author using new AMS dates and strontium and oxygen isotope analysis on burials previously classified as ‘intrusive’ in this period have demonstrated that some of these burials date to the Late Iron Age/Roman period and that for some their origin and early childhood was spent in Roman Britain. The focus of the discussion will be on how identities were being recreated in Ireland through the use of Roman-type objects for bodily adornment and how this would have impacted on the sense of self for the individual but also wider community relations. It will also explore how and why people appear to have adopted or emulated Roman ritual practices at key sites around Ireland. In presenting a comparative analysis with other societies engaging with the Roman administration but outside formal control and territory, temporal and geographical indicators will be explored to
demonstrate transition over time. It will highlight how at key historic centres in Ireland early Roman influences became embedded into a syncretic Romano-Irish ritual practice, which in time paved the way for the adoption of Christianity in Ireland.

**TH3-15 Abstract 05**

**Europe of the Regions? Sailing between Scylla and Charybdis on Europe’s Atlantic Arc**

**Author** - Ó Ragain, Russell, University of Cambridge, Heidelberg, Germany (Presenting author)

**Keywords:** Early medieval Europe, Multiscalar perspectives, Theoretical archaeology

**Presentation Preference** - Oral

This paper will explore the epistemological and ontological validity of taking the various territories along Europe’s Atlantic seaboard as an area of study in the first millennium AD. It draws on some the insights gained thus from an on-going wider collaborative research project on the Atlantic Arc in the first millennium AD with Patrick Gleeson, University of Newcastle, and Alvaro Carvajal Castro, University College Dublin. In keeping with the overall theme of the session, an attempt will be made to steer a course between various extremes usually portrayed as a series of binary oppositions, as evinced in the various particularist/generalist, -emic/-etic, structure/agency, micro-/macro- and exceptionalist/universalist debates across the social sciences, archaeology included. Different poles have attracted varying numbers of adherents in recent decades, as archaeology – and indeed the social sciences in general – lurched from one paradigm to the next. It is argued here that there is no single way of thinking about historical problematics our current (purportedly) epistemologically-anarchic academic milieu. None of these oppositions are as stark as might often be implied, rather they occupy the extreme ends of various spectra, more related to issues such as the spatial, temporal and/or evidential parameters of a scholar’s area of study, or to individual bias. The death of the grand narrative was proclaimed more than three decades ago, however, very little has been offered up as an alternative for scholars interested in change over time and/or on broad geographical scales.

Using the Atlantic Arc as a broader test-case, and more specifically my own multidisciplinary research on settlement in Ireland, Scotland, England and Norway within this wider area, a via media is proposed here. This ‘middle road’, adopted from post-structuralism, might be best termed might the ‘aggregate narrative’, a mediating, empirically-grounded collaborative approach, which brings together the work of several scholars working on smaller spatiotemporal scales or utilising different categories of evidence. This helps mitigate not only against the issues inherent in macro- level generalist approaches, but also those associated with over-adherence to the sorts of micro- level, particularist and exceptionalist approaches associated with the national archaeologies of various regions of Europe. It also helps mitigate against issues such as the relationship between nationalism/regionism and archaeology on the one hand, and on the other, the epistemological dissonance brought about by the use of different systems of classification.

**TH3-16**

**TOWARDS DIGITAL INFRASTRUCTURES FOR OPEN, PARTICIPATORY, PUBLIC ARCHAEOLOGY**

**Thursday, 1 September 2016, 14:00-16:00**

**Faculty of History, Room 329**

**Author** - Dallas, Costis, University of Toronto, Canada (Presenting author)

**Co-author(s)** - Degreave, Ann, Brussels Capital Region - Heritage Direction, Brussels, Belgium

**Co-author(s)** - Fernie, Kate, 2Cultures Associates Ltd., United Kingdom

**Keywords:** CARARE, digital archeology, Europeana

**Presentation Preference** - Round table

The Amersfoort Agenda of the European Archaeological Council, developed during its 15th annual symposium, identifies the need for concerted action to meet the objectives of the Council of Europe’s Framework Convention on the Value of Cultural Heritage for Society (Faro Convention) to secure the rights of people to access, participate, and benefit from cultural heritage and cultural life, and contribute towards its enrichment. This round table, taking stock of the insights from digital infrastructures such as Europeana and its CARARE network of archaeological and architectural heritage archives across Europe, will explore and debate how aggregated digital archaeological resources and the infrastructures supporting them can best serve the needs of a truly participatory and open social archaeology, enhancing and unlocking their value to foster citizenship, innovation, economic growth, employment and social cohesion. Understanding the potential value of digital archaeological infrastructures for diverse stakeholders including young people and children, the needs and opportunities they may offer for archaeological land management, education, tourism, research and the creative industries, as well as the promises and challenges of integrating social media, open curation, crowdsourcing, and semantic enrichment to enhance social access and participation to archaeological sites and data, will be among the topics to be discussed.
In scientific literature the term "Baltic region" is often used in either of two meanings: as the geographical region around the Baltic Sea, and as a cultural region of the Balts.

This conference theme on the Archaeology of the Baltic Region seeks interconnections of both meanings of the term "Baltic". The remains of material culture and toponymical forms demonstrate that the influence of the Baltic cultures covered the territories from contemporary Moscow to the Oder river, and from contemporary Latvia to the Ukraine and overlaps with geographical region around the Baltic Sea. Cultural and technological interactions between these two regions were important factors in the formation of Northern, Eastern and Central Europe throughout the period of the 2nd millennium BC to the 16th century AD. However, various roles played by different cultures in the development of the region remain problematic, and were heavily influenced by the nationalistic narratives of the 20th century.

Fundamental questions about the formation of both "Baltic regions", the interconnections between Baltic, Slavic, Finno-Ugric, Germanic cultures and the rest of Europe; the impact on formation of medieval Lithuanian, Russian, Polish, German, and Swedish states will be discussed in this Theme.

This Theme is dedicated to Maria Gimbutas (1921-1994), the world-renowned Lithuanian scholar who contributed immensely to the studies of the Balts as a part of the wider Indo-European phenomenon of the "Old Europe".

TH4-02 ARCHAEOLOGY OF THE BALTS

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TH4-02 ARCHAEOLOGY OF HILLFORTS IN THE BALTIC

Thursday, 1 September 2016, 14:00-18:30
Faculty of Philology, Room 107
Author - Sebastian, Massal, German Archaeological Institute, Berlin, Germany (Presenting author)
Co-author(s) - Baen, Timo, Centre for Baltic and Scandinavian Archaeology, Schleswig, Germany
Co-author(s) - Bitner-Wróblewska, Anna, Państwowe Muzeum Archeologiczne, Warszawa, Poland
Co-author(s) - Zabiela, Gintautas, Klaipėda universiteto
Institute of Baltic Region History and Archaeology, Klaipėda, Lithuania
Presentation Reference - Regular session

Hillforts resp. strongholds are most famous and recognizable monuments of ancient societies in the northern part of Europe. From the region east and south of the Baltic Sea altogether about 1,700 hillforts and strongholds are currently known, dating from the Early Metal Age/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 the pre-Roman Iron Age already and were used in different time periods. However, the network of sites has greatly changed in the course of time. Many of the sites, especially those of the Early Iron Age, were of short-time use, sometimes also re-used. Only in a few cases the site was used over a long time period. The case of south-eastern Estonia enables one to suggest that dates and chronology of hillforts, based on only external features, and not proved by results of archaeological excavations, may be most misleading.

TH4-02 Abstract 02
The evolution of hillforts in Lithuania according the C14 data

Author - Ass. prof. 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
and majority in old LSC method. Now we possess new series of these data, made in AMS mode. They allow us to correct some aspects in development of hillforts in Lithuania. Between them are the time of origin of hillforts and this development in Roman and Migration periods of Iron Age. C14 data permit to precise some aspects in this development, but not change the general schema. The new C14 data, given from hillforts in neighbouring countries also estimate for creating the modern model of development of hillforts in South-East Baltic region.

**TH4-02 Abstract 03**

**The application of geophysical investigations in Baltic hillforts**

Author: Dr. Masał, Sebastian, German Archaeological Institute, Berlin, Germany (Presenting author)

Co-author(s): Hörster, Johannes, Hörster, Johannes, Institute of Baltic Region History and Archaeology, Klaipėda, Lithuania

Keywords: Baltic Hillforts, Geophysics, Noninvasive methods

Presentation Preference - Oral

Since 2010 several archaeological sites have been geomagnetically surveyed in Lithuania. In the framework of this cooperation also several hillforts (Taurapilis, Opstainiai/Vilkyškiai, 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 architectural monuments. For some hillforts, the surveys also provided very precise and hillfort unknown information about the settlement context like Taurapilis or Opstainiai/Vilkyškiai (fortification ditches) or Jakai (submantine; stone wall fortification). These new results clearly show the potential of noninvasive, especially geophysical methods for archaeological purposes, not just for archaeological research, but also for cultural heritage management. The geomagnetic data can be used differently: as basis for specific archaeological investigations – which have for example already been conducted in Taurapilis – and for the development of future concepts and strategies for the protection and preservation of these sites. The paper focuses on comparing the most exciting results of these surveys which will be presented and discussed during the talk.

**TH4-02 Abstract 04**

**Signals of subsistence economy as revealed by pollen data: a case study from Lithuanian hillforts**

Author: Dr. Stankiukaitė, Miglė, Nature Research Centre, Vilnius, Lithuania (Presenting author)

Keywords: hillforts, Lithuania, pollen data

Presentation Preference - Oral

During the recent decades archaeobotanical survey became an important part of the archaeological investigations conducted on different chronological and spatial scale all over the Europe. Territory of Lithuania was not an exception and pollen, plant macrofossil, diatom or phytolith analysis was carried out in the environs of the hillforts. In most cases, these investigations was a part of complex interdisciplinary approach that provided scientists with complex information dealing with palaeoenvironmental, economical, chronological, cultural and etc context of the investigated monument and surroundings during the 1-2 millennia AD. Herewith a new data revealing the peculiarities of the vegetation pattern, introduction and expansion of the cultural plants and cultivars or indicating changes of the cultural traditions were obtained based on results of pollen survey.

Recently pollen investigations were conducted in the territory of Impiltis (Late Iron Age – the Middle Ages), Skomantai (Early Iron Age-Migration Period and the mid-13th c,mid-14th c. AD), Juodnavis (the early Iron Age – the Early Middle Ages) and Petraišiai (1st-3rd century AD – Historical times) hillforts or in the closest vicinities of mentioned monuments.

An intensive human activity began in the Impiltis area, W Lithuania, shortly before 900 AD, generally coinciding with the onset of the “Medieval Warm Period” and the irst appearance of rye (Secale cereale) and flax (Linum usitatissimum) grains is the earliest, which indicates the development of permanent agriculture using some fixed rotation system. Herewith the paleobotanical evidence establishes that human interference in the Skomantai included mixed pastoral-arable land use with Secale cereals and Fagopyrum cultivation during the Early Middle Ages. Occurrence of the latter plant is in a positive correlation with the regional signal (mid-13th c., Vilnius Lower Castle, E Lithuania) suggesting active trade and exchange.

Keywords: hillforts, Lithuania, pollen data

Presentation Preference - Oral

The presentation deals with two strongholds located in Zamland close to the coast of Baltic Sea near to each other. Test excavation of ramparts and ditches showed not very complicated stratigraphy. Hand-made pottery of Prussian type is dated on the bottom of the ditch. Radiocarbon date 1240 ± 30 (GRN-1009) fits well with traditional archaeological date of Prussian ceramic. Main question we tried to answer was if these strongholds were the places of concentration of population and activities? First part of the question got the negative answer. Second part of the question got not so clear answer. Various forms of constructed activities are discussed in report.

**TH4-02 Abstract 07**

**Drilling the past - New approaches in dating hillforts in the Baltic region**

Author: Dr. Ibsen, 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 Sambia peninsula we know 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 gives 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

**TH4-02 Abstract 05**

**The environment of the Sambia hillforts according to the pollen studies**

Author - Ershova, Ekaterina, Moscow State University, Moscow, Russian Federation (Presenting author)

Co-author(s) - Krenke, Nikolay, Institute of Archaeology RAS, Moscow, Russian Federation

Keywords: environmental archaeology, land use, pollen analysis

Presentation Preference - Oral

A large number of paleo-geographic reconstructions based on pollen data were made for the coast of the Baltic Sea by European and Russian scientists. However, such reconstructions for Sambia Peninsula are still lacking. Archaeological studies of the Sambian expedition (A.RAS, 2005-2013) in the area of the village of Kulikovo (Klingenberg) have identified a number of natural and man-made objects that are suitable for palynological studies. These are cultural layers, pits and moats fillings, ancient soils, buried under the deluvial sediments, as well as small peatlands. All of these objects have been dated using archaeological or radiocarbon methods. Pollen analysis of the sediments allowed us to reconstruct in the general the vegetation changes of the North of the Sambian Peninsula over the past 2000 years. It is shown that prior to the intensive agriculture development coniferous-deciduous forests with spruce, pine, oak, linden, hornbeam, elm were widespread, along with black alder forests in the lowlands. The mass extirpation of upland forests was associated with Roman time (about 1800 BP). In the following, Prussians, 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 of different epochs, such as the cultivation of various crops, have been revealed. Also, pollen studies allowed us to identify some local episodes of vegetation changes associated with the history of individual archaeological sites.

In addition to the late Holocene sediments associated with human activities, well-preserved organic sediments with radiocarbon dates 8500-10500 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 Peatlocone and Holocene: the gradual transformation of a shallow freshwater reservoir in the morrow and than in the fen, while pine forests dominate the surrounding landscapes.
as Radio-Carbon-analysis are available only for a few monuments in Poland, Lithuania and Latvia, but they are absolutely absent for the Kaliningrad Region.

In the context of a bigger project on settlement archaeology, conducted by the Centre for Baltic and Scandinavian Archaeology in Schleswig and the Museum of Prehistory and Early History in Berlin and financed by the Academy of Sciences and Literature Mainz, the author developed a new strategy for the dating of hillocks. Using a motor driven drilling equipment for samplingdatable material, especially carbon for Radio-Carbon-analysis, the rampants of several hillocks 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 hillocks in the East Baltic: conflicts and metallurgy

Author - Podenas, Vytenis, National Museum of Lithuania, Vilnius, Lithuania (Presenting author)

Keywords: behavioral archaeology, early hillocks, spatial analysis

Presentation Preference - Oral

Recent research of archaeological finds and new discoveries in the Lithuanian museums encourages reconsidering the cultural phenomenon of emergence of hillocks in the Late Bronze Age. The basic assumption of this paper is that the emergence of hillocks are a behavioral expression of prehistoric conflicts. A contemporaneous process of appearance of locally executed metalurgy in the East Baltic region concentrates in hillocks as well. Thus making the two practices comparable.

With application of behavioral archaeology theory, the research of the formation processes of Narkūnai “Didysis” hillock is presented as a case study with spatial analysis of household and technical ceramics, bone arrowheads and spearheads, and metal finds. Results suggest abandonment of the northern building with the concentrated sherds’ nests and bone finds. The analysis of aforementioned groups of finds is compared to recent research and spatial analyses by Latvian and Estonian archaeologists of archaeological context of Asva, Ridaia and Krivutkins hillocks. In addition, distribution of early hillocks and early hillforts in the East Baltic region and its chronological character are analyzed.

Typologically most of the earliest finds from the hillocks 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 PIII. Casting moulds for socketed axes from Narkūnai, Garniai I, Sokiškiai, Vosgos and Krivutkins hillocks, and casting molds for spearheads from Asva, Brikuli and Krivutkins hillocks are one of the earliest evidences, dated to PN-VI, of locally executed metalurgy in East Baltic region. The histiographical classic route of Daugava river seems to attract most of the early metalworkers. Casting moulds for Mālāri type socketed axes are an indication of spatially focused metallurgical activities in the hillocks. The latter casting moulds, like the rest of the technical ceramics types, are scarce, with similar amounts in Narkūnai and Krivutkins and one newly found in the National Museum of Lithuania from Garniai I hillock. However, the Mālāri-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 hillock technical ceramics indicate that the Mālāri-type bronze axes had been cast on two different occasions, therefore making some ground for the itinerary metalworkers’ hypothesis. The aim of the paper is to reconsider the emergence and character of early hillocks in the East Baltic region, correlating the spatial analysis of bone, ceramic and metal artefacts, and the emergence of locally executed metalurgy as a relatable 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: hillocks, Late Bronze Age, Pomerania

Presentation Preference - Oral

Although hillocks identified with Lusatian culture, from the end of the Bronze Age and beginning of the Iron Age appear in vast areas of Poland, no well preserved Late Bronze Age Hillfort present in Pomerania, beside Lower Oder river. This situation is surprising, especially taking into account relatively numerous appearances of hillocks 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 hillocks 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 hilforts 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. Kotli, Piotr, Department of Geomorphology and Palaeogeography, Faculty of Geographical Science, Lodz, Poland

Keywords: archaeological prospection, Early Middle Ages, ring-forts

Presentation Preference - Oral

Medieval ring-forts in Central Poland were a subject of archaeological interest since the 1930’s. Twelve features included in our projects were previously either partially excavated. These studies despite gathering new data regarding stratigraphy, chronology and material culture usually failed in bringing forth definite understanding of the ring-forts functioning in the landscape. Since the 1990’s along with the rapid advance of non-invasive methods new possibilities were opened up for the study of ring-forts and their landscape contexts. In 2013-2015 three projects based on combinations of non-invasive and geoarchaeological methods were undertaken. Multiple methods such as magnetic gradiometry, earth resistance, aerial prospection, photogeology prospection with a simplified field method, analysis of archival aerial data, airorna laser scanning, intensive analytical field walking, RTK GPS and Total Station surveys and geomorphological surveys along with geological mapping were carried out in order to provide possibly comprehensive and complementary data sets without archaeological excavations. All results were integrated in a digital environment based on open source GIS software. The project methodology allowed the collection of vast and significant new datasets such as previously unrecorded information about the spatial structure of fortification features: additional rampart lines in Chelm, the course of not preserved ramparts in Wrówek and Ropierka, a previously unknown second, smaller ring-fort in Stare Bińcowo. 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 Łódź) were a prime example of new data categories that non-invasive approaches bring forth. Field was excavated in 1940s but reevaluation of previous knowledge is now necessary. Remarks 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 Łucja and Raśka river in the central part of valley floor, but on the Płoniński alluvial terrace remnant. Non-destructive surveys of the ring-fort surrounding were carried out in 2013-2015. In 2015 the small-scale excavation phase began, combined with complex palaeoenvironmental research. It helped to detect the presence of a developed system of dams and ramparts which appeared to be a palimpsest composed mainly of elements deriving from a late medieval motte and bailey residence, which replaced an older, early medieval ring-fort. The survey revealed the existence of earthen and timber ramparts as well as moats with a depth of up to 1.4 m with organic till of gravel and peat and partially inorganic deposits with rich remains of woods as well as other organic materials. The results correspond to various geophysical anomalies and crop marks documented during aerial reconnaissance.

Acknowledgements. This research project was financed by three one-year grants from The Ministry of Culture and National Heritage No. 01619/13/FPK/NID (2013), 4962/14/FPK/NID (2014), 4962/14/FPK/NID (2015) and by a grant from the National Science Centre based on the decision No. DEC-2013/11/B/H53/03785 (2014-2017).

TH4-02 Abstract 11
Is Hollenstedt the Carolingian Holdunsteti from 804 AD? New contributions to an old controversy

Author - Dr. Schneeweis, Jens, Institute for the History of Material Culture RAS, Saint Petersburg, Russian Federation (Presenting author)

Co-author(s) - Dr. Brandt, Jochen, Archäologisches Museum Hamburg/Helmuseum, Hamburg, Germany

Keywords: Carolingian Border, ceramics, dendrochronology

Presentation Preference - Oral

The stronghold ”Alte Burg” near the village of Hollenstedt is an Early Medieval fortification, which was long-interpreted as the place where Charlemagne met representatives of the Danish king Godofrid in AD 804. It was partly destroyed and then excavated in the late 1960s and 1970s. Since that time there is no consensus about the dating and the related interpretation of the site, which is ranging between the early 9th and 10th c. AD. This question is of major importance not only for the historical interpretation of the site but especially for the understanding of the ceramic finds. The excavations at Hollenstedt revealed a unique complex of pottery showing both Saxonian and Slavonic influences. The solution to the dating problem can establish Hollenstedt as a reference site for these “hybrid” ceramics. In autumn 2014 recent research including excavation and of photoguation 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.
Spatial analysis of the system of fortifications of the Iron Age hillforts Dyakovo culture

Author: Chaukin, Sergey, Institute of Archaeology Russian Academy of Sciences, Moscow, Russian Federation (Presenting author)

Keywords: Hillforts, Iron age, Spatial analysis

Presentation Preference: Poster

The study deals with the sites of the early Iron Age in the area between the Oka and Volga (East European Plain). This area was inhabited by tribes of the so-called Dyakovo culture. The remains of the fortifications of these settlements are the ramparts and ditches located on the residential area and the perimeter of the escarp - 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 Dyakovo 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 falls on top of the second and third stages of life on the hill-forts. All settlements were divided into three layers corresponding chronological periodization. Stage 1 - 8th century BC - 6th century BC, stage 2 - 5th century BC - 2nd century BC, stage 3 - 1st century - 7th century AD.

THE MATERIALITY OF CULTURAL CONTACT. THE BRONZE AGE IN THE BALTIC SEA REGION

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

Presentation Preference: Regular session

The Baltic Sea region has been viewed as a maritime network of contacts implying well-developed infrastructure of communication and transport. However, the cultural (pre)history of the Baltic is not just a maritime one; it goes for the Bronze Age, societal interaction was certainly not restricted to the Baltic coasts and islands but embraced much wider inland regions and river systems. Bronze Age studies have, to a certain extent, always been (social) interaction studies. That is mainly because of geographical distribution patterns of material culture attributes, indicating to expanded networks. Particularly the nature and extent of exchange and transmission are the most discussed topics in Bronze Age research. Metalwork production and circulation, for instance, have been prominent issues ever since because the widely travelled objects and materials turned scholar’s attention to their value, meaning and reception in the particular social milieu.

Metals and production remains are just one of the many material sources of social interaction, just as rock art (as visual culture) or pottery from either domestic or funerary contexts. In spite of recent achievements in Bronze Age research we have, however, to admit that materialities of different kind may lead to different perspectives of connectivity. That is why the studies of any object’s social biography or cultural value demand theoretically well-informed approaches when identifying or interpreting social transformation and reception processes.

The session welcomes papers dealing with any aspect of material expression in regard to cultural contact or cross-cultural transmission in a wide context of a Baltic Bronze Age, in order to introduce the various archaeological and scientific approaches to Bronze Age networks and related key issues (scale, chronology, materiality).

THE ROLE OF ESTONIA WITHIN BALTIC SEA NETWORK DURING THE PROTHISTORY

Author: Dr. Abbate, Stefano, Independent Researcher, Roma, Italy (Presenting author)

Keywords: Cultural interactions, Estonia, local identities

Presentation Preference: Oral

In the human-environment interactions, the analysis on the shifting dynamics of the trade routes represents a key for understandings patterns in which humans behave, organize and perceive themselves and their world. In Baltic Sea, Estonia is localized in prosperous geographical position: its north-western coastal areas and islands on one hand and its south-eastern land borders on the other have contributed positively to the definition of cultural transmissions, widely well-evidenced by circulation of goods, ideas and traditions as early as Bronze Age. Funerary archaeology has traditionally been one of the main research topics useful to define the social identities and demography, in fact, by means of analysis of spatial distribution, grave goods assemblages, funerary architecture and anthropological data, the social structures and rituals of the protohistoric human communities can be reconstructed.

This project will focus on the active role of Estonian communities and on their capability to assimilate and to adapt to local traditions all those elements included in the long and complex prehistoric experience. Through some case studies (e.g. Kasuküla), it is possible to identify evidences connected with ancestor cult, expression of a remarkable sense of belonging to the past.

BRONZE AGE CAIRN ENVIRONMENT AT GOTLAND – FOUR CASE STUDIES OF LONG TERM RITUAL PRACTICES

Author: Ass. Professor Martinsson-Wallin, Helene, Uppsala University, Uppsala, Sweden (Presenting author)
Keywords: Bronze Age Cairns, Gotland, Ritual Practice

There are over a thousand cairns on Gotland that has been discussed as burial sites belonging to the Bronze Age and around 200 of these have monumental dimensions, ranging from 20 to 56 meter in diameter and 2.5-7 meter high. Only a few of these structures have been partly excavated and only one has so far been totally excavated with archaeological scientific methods. These cairns have so far only been discussed as burial sites but due to our recent archaeological excavations in relation to three of the largest cairn environments on Gotland (Oggard Eggar, Jägar and Häglö) and re-examination of the material excavated at Kauferveroy 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 natural environment during several thousand years.

TH4-04 Abstract 03

Patterns or randomness? Contextualising Estonian Bronze Age bronze stray finds on the landscape

Author - Paavel, Kristiina, University of Tartu, Tartu, Estonia (Presenting author)
Presentation Preference - Oral

From Estonia, most large Bronze Age (1800-500 BC) metal items such as axes and spearheads have been found from non-settlement, non-burial context as single stray finds. In contrast, bronze finds from settlements and burial sites are small and of personal nature - tweezers, razors or clothing-related items such as buttons. The connection of stray bronze finds with coeval settlement sites has been assumed on a few occasions. A couple of items have been associated with possible deposition in water bodies. The possibility of these stray finds being deliberate depositions on the landscape, as identified in large parts of Europe, including the Baltic, has until now been systematically unexplored. This phenomenon has been interpreted from different perspectives: sacrifice, conspicuous consumption, mundane safe-keeping, memory practice and the removal of valuables or objects with powerful life-histories from circulation. Seeking patterns in Estonian material required characterising the original deposition environments of individual find-locations. To do so, I combined archive materials, topography, shore displacement data and information on soil properties. The results point to observable patterns in artefact distribution, with a preference for water bodies, wetlands and slopes. This implies not random losses, but purposeful deposition activity.

TH4-04 Abstract 04

Digital re-construction of a Bronze Age stone wall enclosure and the landscape at Lina Mire, Gotland

Author - Associate Prof. Wallin, Paul, Uppsala Universitet, Visby, Sweden (Presenting author)
Co-author(s) - Martinsson-Wallin, Helene, Uppsala Universitet, Visby, Sweden
Co-author(s) - Wahlin, Joakim, Dalarna Museum, Falun, Sweden
Co-author(s) - Sandelin, Anders, Sandelin Animation, Stockholm, Sweden
Keywords: Bronze Age, Re-Construction, Wall enclosure
Presentation Preference - Oral

The aim of the project was to digitally re-construct the stone wall enclosure at Gothemshammar and to understand its location in the surrounding landscape. Excavations into the feature uncovered its internal construction details, as well as, dateable materials from domestic animals and charcoal. Fifteen AMS dates gave a clear and somewhat unsuspected age of the structure to the mid Bronze Age ca. 900-700 BC. The northern end of the wall is to be found at the end of a steep cliff, and since the southern end of the wall ended in an open slightly slanting terrain it suggested that it might have ended at the sea level when built to demarcate a point in the landscape. We therefore reconstructed the water level using LIDAR data indicating that the former sea level at mid Bronze Age could be set at about 10 m above the current sea level in this area. To place the wall enclosure in its Bronze Age context we also plotted other features tied to the same time, such as stone ship settings, cairns, other wall enclosures, and known hoards into the re-constructed landscape. It then became quite evident that points, small islands, and the coastal locations was of great importance for the location of these monuments and that Lina mire must have been an important "port" for Bronze Age communications, internal as well as external, and Gothemshammar was strategically located at the entrance of this water system.

TH4-04 Abstract 05

Between Social Dynamics and Cultural Constancy. Case Study of the Trzciniec Culture

Author - PhD student, Agne, Zilinskaite, Vilnius University, Vilnius, Lithuania (Presenting author)
Keywords: Bronze Age, pottery, Trzciniec Culture
Presentation Preference - Oral

The appearance of the Trzciniec Culture (Trzciniec Cultural Cycle) in Lithuania and its role in the formation process of Bronze Age cultures is still a controversial question at the present stage of research. The investigation of this culture started only a few decades ago even though Trzciniec culture artefacts have been known in Lithuania for a long time. The archaeological material of this culture is known from almost 20 sites in current Lithuanian territory. Individual pots, clusters of pottery and artefacts are usually found on these long-term lived sites. The ornamental motifs on the pottery in all the groups of Trzciniec Culture are the most important criterion for identification. However, the conspicuous influence of neighbouring simultaneous cultures can be seen in this pottery. Its background was no doubt Globular Amphora and Corded Ware Cultures with influences of the奴va and Nemunas Cultures in Lithuania.

There are more individual sites which scattered over the northern area far from the main Trzciniec Culture territory (Lithuania, Latvia, Kaliningrad district). One may reasonably ask how these finds should be evaluated as 'islands' of Trzciniec culture (1), as a reason to include Lithuania in the Trzciniec culture's range (2) or as the result of the influence or penetration of cultures linked to this culture (3).

Therefore, the Trzciniec culture in Lithuania's territory could be treated as one of the most influential phenomena of the Middle Bronze Age. This paper analyses various aspects of the concept and chronology of the culture and presents a history of the research in the culture's territory. Priority is given to archaeological pottery, the main indicator for cultural identification. In addition, this paper analyses the Bronze Age cultural situation in the Eastern Baltic region and raises the question of whether the Trzciniec culture existed in Lithuania and in what form.

TH4-04 Abstract 06

Coastal and northern Lithuania in the Late Bronze Age – communication networks and interactions

Author - Assoc. prof. Merkevicius, Almogantas, 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 Baltic Region, especially in the coastal zone and around Daugava River. A new culture elements, such as some type of graves, pre-Celtic buildings, cup-marked stones, stone enclosures, metal artefacts (Main type axes, miniature daggers and others) were found and interactions in the Baltic Sea Region. Some of new culture elements are the result of external influences from coastal zones of the western and southern Baltics. Distribution of new type of sites and artefacts suggests communication networks in the Baltic Sea Region. One of the trade route was established at the beginning of the first millennium BC and functioned between central Sweden, Gotland, east Baltic Region (Daugava route) and northeast Russia in the first half of the first millennium BC.

The aim of the paper is to discuss communication networks and nature and scale of interactions in the Baltic Sea Region in the Late Bronze Age.

TH4-04 Abstract 07

Materialised and non-materialised contacts in Bronze-Age Eastern Baltic

Author - Professor Lang, Valter, University of Tartu, Tartu, Estonia (Presenting author)
Keywords: Bronze Age, Finno-Baltic contacts, long-distance contacts
Presentation Preference - Oral

Archaeology as an academic discipline studying material culture can easily follow contacts between people from different regions if some evidence has been left behind – usually something material which can be studied by scientific means. There are numerous examples of bronze artefacts found, for instance, in what is today Estonia that demonstrate long-distance contacts with the mid-Volga region, the Caucasus, Scandinavia, etc. We know about these contacts 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 linguistically – that is, non-material – evidence of a mixed bilingual population. It seems rather plausible that the fortifications, iron (battle-)axes, and shepherd’s crook pins reflect different aspects of the same process, which most likely involved troubled times and even some military impact. It is likely that some groups of invaders of Indo-Iranian or Balto-Slavic origin may have infiltrated into the Finnic population during this process.

TH4-04 Abstract 09
Landscape transformations at the turn of Bronze and Iron Age at the southern coast of Baltic Sea

Author - Niedźwiecki, 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 Umfeld tradition. Appearance of Pomeranian culture was tied with new patterns in burial rites: people started to put ashes of their deceased in impressive urns with images of faces (so-called face urns) which afterwards were buried in a cist graves. In contrast to the previous rite, Pomeranian culture cemeteries were smaller but more numerous - the dense network of flat burial grounds covered Eastern Pomerania. On the other hand, large barrow cemeteries from the end of the Bronze Age ceased to be used. This may indicate that these changes must have had a strong impact on the local cultural landscape. Moreover, basing on the pollen analyses it is visible that there was a change on the natural environment, what can be linked with their economic activity.

The main aim of this paper will be presenting endeavours 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 descriptive changes from a wider – cultural, social, and environmental perspective.

TH4-04 Abstract 10
Pre-Roman military impact on the northern European 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 Võnnumägi, which was defended by means of an extensive stone wall. In most cases the existence and nature of fortifications is far from clear; however, Radioncarbon 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 there were 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 most likely have been found from cemeteries where 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 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 descriptive changes from a wider – cultural, social, and environmental perspective.

TH4-04 Abstract 11
The Early Roman Iron Age site at Ellinmiittä, Rauma Finland

Author - PhD Uustila, Kari, Muurutikmus, Kaarina, Finland (Presenting author)
Keywords: digital documentation, early Iron Age, iron finds
Presentation Preference - Poster

During the years 2015-2017 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 digger, 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 morrky-pottery shards was found. This has been interpreted as a part of a settlement site. In this area also pieces of burned bone were excavated. From these bones of fish, seal and one bone from either a sheep or a goat were identified. Macrofossil analysis revealed seeds of barley and wheat.

The most surprising finds were two iron bracelets, two pieces from iron knives and two small pieces of iron. These were all found from a 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.
TH4-04 Abstract 12

Pre-Roman Age tarand graves - trends and specialities

Author: MA Kivirüüt, Anu, University of Tartu, Tartu, Estonia (Presenting author)
Co-author(s): Olli, Maarja, University of Tartu, Tartu, Estonia

Keywords: Burial rituals, Pre-Roman Iron Age

Presentation Preference: Poster

Tarand graves spread in Estonia and around the Baltic Sea during Early Iron Age (500 BC – AD 450). This grave type was the most preferred one during a long time in the area of nowadays Estonia. The overall type of grave changed only slightly during these centuries, but the exact construction and contents of the grave varied regionally as well as temporally. Nevertheless, aside the differences, there are numerous similarities that allow the researchers to group the graves and see their evolution through time and both internal and external influences of the Early Iron Age society.

The poster will concentrate on a handful of case studies of Pre-Roman Age tarand graves and intends to map the influences and trends that have lead the mourners to build these monuments, bury their dead either cremated or inhumed, and to choose and place the items suitable for the grave.

TH4-05 Abstract 01

Extraordinary in death – the Hoby graves

Author: Dr. Blankenfeldt, Ruth, Zentrum für Baltische und Skandinavische Archäologie, Schleswig, Germany (Presenting author)
Co-author(s): Banytė-Rowell, Rasa, Lithuanian History Institute, Vilnius, Lithuania
Co-author(s): Kurila, Laurynas, Lithuanian History Institute, Vilnius, Lithuania
Co-author(s): Vengalis, Rokas, Lithuanian History Institute, Vilnius, Lithuania

Keywords: Cross-examination, first millennium AD, rural communities

Presentation Preference: Regular session

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 in 2003 and 2005 years revealed a settlement from the same period as the richest graves in the area. In the period from 2010 to 2015, larger excavations have been carried out in the settlement and activity area. These investigations have been carried out in collaboration between the Museum Lolland-Falster, Center for Baltic and Scandinavian Archaeology (ZBSA), and the National Museum.

The settlement and activity area cover an area about 100x150 meters (328x492 feet), and about a third of this area has been excavated up until now. On larger parts of the Holy settlement, culture layer is preserved in a thickness of up to 0.6 meters (1.9 feet). It contains large amount of pottery and preserved animal bones besides the remains of clay floors. The preliminary studies show that the building at Holy represents a larger community/village. The long houses are located in EW rows. To the North, the settlement is bordered by an activity area with a large water-filled pit surrounded by numerous smaller pits, deposited bone mounds and a well. The activity area and the house constructions are contemporaneous.

In this present paper, the settlement will be presented, and the current state of our research concerning settlement structure, economy and cultural perspectives will be presented. Finally, the results are compared to some of the contemporary settlements from current Danish territory.

TH4-05 Abstract 03
Rosenholmvej a central site in Middle Jutland

Central settlement and hinterland – life and death in the 1 Century AD. A complex of rich graves, farms and villages. In the central part of Jutland. Museum Midtjylland has excavated a number of sites that all relate to an extraordinary rich site, Rosenholmvej. This central site is a settlement that covers most of the period from 500 BC through 200 AD, but with a “highlight” in period B1a. At this time a grave yard is constructed which includes a number of extraordinary rich graves with gravegoods and constructions that place them in a separate category. It links them to other regional groups in Denmark, Europe and to the political turbulence we see in those years. At the same time, this group of people expresses their status in the construction of “farmstead” that is in every respect extraordinary, with features that both illustrate their social, regional and international status. In the last decades, 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. Vengals, Rokas, Lithuanian History Institute, Vilnius, Lithuania (Presenting author)
Keywords: prehistoric settlements, settlement pattern, survey
Presentation Preference - Oral

The research of the Iron Age in Lithuania (which is dated to the 1st millennium A.D. according to the periodization of this region) was focused only on the ethno-history for a long time and that was the reason why the attention of archaeologists was directed to the studies of the burial sites. Because of such trend we could say very little about communities of that period, except for their ethnicity. There was some knowledge about the social structure, trade directions and ideology as well, but practically there was no information about the subsistence, the economy, settlement patterns and other themes.

In recent decades this trend begins to change little by little – researchers begin to take in 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.

The research of the Iron Age settlements in Lithuania is a complex task. There is a challenge encountered in attempting to analyze the intra-site structure of settlements, as well as settlement pattern, 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 a sample from a contemporary settlement which shows that we can obtain valuable data applying new methods by reevaluating 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.
Archaeology of the Baltic region

TH4-05 Abstract 09
Brothers-in-arms. Interregional contacts of the Balt warriors in the Roman and Migration periods

Author: - Dr. habil. Kontry, Bartosz, University of Warsaw, Warszawa, Poland (Presenting author)

Keywords: Baltts, Roman Period, weapons

Presentation Preference: Oral

The paper deals with the weapons from the West Baltic cultural circle showing their parallels and foreign inspirations. Basing on the archaeological grounds the author presents the general model of the Balt weaponry with its specific traits (axes, socketed axes, possibly wooden shield bosses) and further on tries to find its elements in non-Balt regions, e.g. Scandinavia. This phenomenon is then observed on the cultural background, i.e., wars, migrations and changes in cultural structure in the Baltic Sea area. This leads to the conclusion that the Balts participated in particular international military events which was favorable for exchange of technical solutions as refers to the weaponry as well as in the field of tactics and symbolism.

TH4-05 Abstract 07
Searching for links between artefacts from areas of prehistoric dwelling sites and burial grounds

Author: - dr. Ilona Varnislava Rovell, 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 saccrum where property donated for the dead might reflect a distorted picture of reality. Grave-goods are the result of creative activity performed in "real life". Therefore finds from dwelling sites have great importance for connecting artefacts from burial grounds back to sphere of profanum.

We can seek answers to where the production of tools and ornaments took place. Another interesting question is whether the regional shapes/types of artefacts, usually placed on maps according a database of burial sites are distributed in a similar way in the settlement pattern of the same territory. Such a comparison raises the question of whether regional ornament styles were created under the influence of "the regional taste" of several artisans of a particular region and that process reflects the existence of a regional identity. Or perhaps these regional features had a more practical origin - the distribution of particular types in particular regions is 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 Zemaitija and Central, Southern and Eastern Lithuania while the tradition of placing Roman coins in burials is almost absent. The latter finds testify to the circulation of Roman coins in all regions of Lithuania and such finds in dwelling sites leads us to consider their function in everyday life. Roman-Iron-Age finds in dwelling sites in Eastern Lithuania have especial importance because the database of burial sites from this period is still small. They reflect the fact that Eastern Lithuania, despite its location in the Balt hinterland, was a region where various cultural influences from neighbouring areas and the European Barbaricum made an impression upon local traditions.

Summarising, it is possible to state that a comparision 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 saccrum and profanum.

TH4-05 Abstract 08
A changing community in north-east Estonia from 400 BC to 900 AD

Author: - PhD student Oili, Maarja, University of Tartu, Tartu, Estonia (Presenting author)

Presentation Preference: Oral

Aakre Kivivare complex is an interesting archaeological site in north-east Estonia which was settled continuously over 1000 years during the Iron Age. There is a monumental stone grave, at least two settlement sites, a hill-fort with two stages and a possible flat cremation cemetery very near each other from different time periods.

It is possible to study the change of burial customs, cultural and trade contacts as well as pieces of everyday life of the prehistoric community from the Pre-Roman Iron Age until the end of the Viking Age based on the Aakre Kivivare complex. Because most of the sites have been excavated, it can be assumed that the place was the centre of a bigger region during 1300 years. Therefore assumptions of a larger society of the time periods can also be made.

The chronology, characteristics of the monuments and as well as items excavated from the sites will be discussed. Based on that, assumptions of the changing identity, religion and cultural and trade contacts of the community will be made.
CULTURAL ENCOUNTERS: PERSPECTIVES ON MOBILITY AND CULTURAL IDENTITIES IN THE BALTIC SEA REGION 4000–2300 BC

Saturday, 3 September 2016, 09:00-13:00
Faculty of Philology, Room K. Donelaitis

Author - Anderson, Anna-Carin, Gothenburg, Sweden (Presenting author)
Co-author(s) - Mazet, Laurent, Saglandet Lejre, Lejre, Denmark


The mentioned time period in the North-European prehistory is very dynamic, and is acknowledged by three more significant subsistence economies. These economies are generally defined as to relate to different cultural groups and varying social customs: the farming Funnel Beakers, the seal hunting and fishing people of the Pitted Ware Culture, and the culture herders of the Battle Axe culture. Local and regional variations of these cultural groups and subsistence economies are present in all countries around the Baltic Sea region during this time period. Issues about the social relations and contacts between these different cultural expressions have for a long time been vividly discussed within archaeology. However, developed archaeological methods and new results from, for example strontium isotope and ancient DNA-analyses, have revealed that the mobility among people around the Baltic Sea in prehistory appears to have been more intense than previously thought. What impact does developed archaeological methods and results generate on the traditional interpretations of cultural encounters? How could these results be related to the archaeological material? The issue is important from the perspective that the archaeological knowledge we produce, by necessity also must be open for scientific revision. This session, therefore, aims to explore and discuss developed perspectives that could challenge the traditional interpretations of cultural encounters and borders among cultural groups in the Baltic Sea region during 4000–2300 BC. The presentations in the session may enrich archaeology on a theoretical and methodological level, but will also have the possibility to influence the wider cultural discussions concerning the contemporary constructions of cultural identities in Europe. The outcome of this session may also provide stronger arguments for a necessary understanding of the conditions of the contemporary and multicultural Europe.

TH4-06 Abstract 01

Ski Archaeology or tracking genesis & evolution of mobility technology across Prehistoric Eurasia

Author - MA Mazet, Laurent, Saglandet Lejre, Lejre, Denmark (Presenting author)
Keywords: Experimental Archaeology, Prehistoric Transport Means, Ski-Mobility-Wood Technology
Presentation Preference - Oral

May Ski Archaeology contribute to clarify the emergence of transport technology, and to map Post-Glacial migrations across Eurasia?
The evidence of mobility in Post-Glacial northern Europe and Asia is well established. More than 200 ski, pole, sled, canoe finds and rock carving motives, strewn 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) wooded transport means, for hunters-gatherers or early nomadic herders and their survival equipment, through new landscapes to adapt.

Travois & skates, dugout canoes & grooved runners, skis & bones, early backpacks & later coracles, rafts & early wheeled canoes are many examples of technological kinship, finding after ages in vehicles or dwelling shapes, recorded by subarctic ethnographies across three continents: fur-shod skis, snow shoes & bark canoes, sledges & toboggans, transportable tents & seasonal huts. In use over the very long term, they all descend from the same shaping of a piece of wood, thinner or lighter, bent and adapted to transitional deployment by human (or animal) propulsion. Beyond the revision of ancient ski’s typology, this research aims to reconsider the emergence and track the developments of Post-Glacial mobility technology, linking material & cognitive resources, functionality & former geography. Experimental reconstructions, emphasizing “archaic” woodworking processes - chains & kettles - and comparison to archaeological evidence and craft traditions, may contribute to sketch a “techno-genetic” family tree for these Prehistoric vehicles, through chronology and geography.

TH4-06 Abstract 02

The affect of Landscape Scale Forcing Factors on the Earliest Neolithization in the Baltic Basin

Author - Trokansky, 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, leasing and demographical pressures break down in the face of exceptionally slow temporal development of the Neolitho Paradigm Shift in culture across relatively small geographical distances.

In this paper a modification is made to Marek Zvelebil’s Homo habitus model, were used to verify the hypothesis that for the case of the formation of the Funnelbeaker (TRB) on the Kajanian Plain the substitution phase of agricultural adoption is short relative to the phases of agricultural availability and agricultural consolidation because it was triggered by landscape level forcing events of various intensities and durations.

Furthermore it is posited that the contemporary dissolution of the Lengyel complex in the region resulted from greater affect due to culturally specific vulnerabilities with respect to these forcing factors than their hunter-gatherer counterparts. This can be seen in the distribution of intercultural agency markers in the material culture and settlement systems of the local TRB fusion group composed of a mix of the remnants of the Lengyel complex and neolithized hunter gatherers.

TH4-06 Abstract 03

Neolithic Cultural Encounters in the Territory of the South Lithuania (4200-2000 BC)

Author - Marcinkočiūtė, 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 centres in Central and Western Europe. Neolithisation also Indo-Europeanisation process was explained by Late Neolithic colonisation of Corded Ware Culture (Battle Axe Culture) warriors, who assimilated autochtonous 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 find found in a surface of the area caused an emergence of numerous multilayer settlements of hunters-gatherers. Archaeological material of Dubičiai, Nemunas, Navia and maybe Comb-Ware cultures also pottery of Funnel Beakers, Globular Amphora, Corded Ware cultures was found in this territory. The most of the sites were settled in a sandy soil which is unfavorable for preservation of organic materials, also flint artifacts of different chronological complexes are mixed in this kind of environment. Nevertheless, by applying paleo-geographical environment reconstruction, spatial-statistical analyses and correlating data of radiocarbon analysis, research of landscape micro-topographical, floral and faunal features as well as ethno-archaeology and experimental archaeology patterns, it is possible to extract and date different complexes, define activities of subsistence economy and behavior of the societies.

TH4-06 Abstract 04

Pottery traditions and cultural processes in the Gulf of Finland region in the 3 mil. BC

Author - Postgraduate Khokhina, Margarita, Saint-Petersburg State University, Saint-Petersburg, Russian Federation (Presenting author)
Keywords: Gulf of Finland region, late Neolithic - Early Metal Period, Pottery
Presentation Preference - Oral

The eastern part of the Gulf of Finland region is rather important for the study of cultural and historical processes of the end of IV - III millennium BC. This territory from the ancient time was located in a contact zone among the areas of different archaeological cultures and pottery traditions. During the mentioned period, which in Russia is usually called the Early Metal Period (EMP), bearers of Comb and Corded Ware pottery traditions coexisted here. The area was peripheral for the both of them. Current study is devoted to the reconstruction of cultural and historical processes, reflected in ceramic material. Among the sources of the study there were fragments of more than 200 vessels from 36 archaeological sites from the eastern part of the Gulf of Finland region.
Comb Ware pottery tradition is deeply rooted in the local Neolithic. As a result of coexistence with groups of population from some closed regions new components appear within this tradition. Among them the temper of asbestos concerned with thin walls of the vessels and shallow ornamentation, typical for Karelia and south-eastern Finland. Another component is organic temper (leather with leather) and mostly comb ornamentation which is most probably characteristic for the upper Volga region. Intensification 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 relatives 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 "Pitted Ware" regions, e.g., "Aktion". At the same time there are some "hybrid" vessels, that have some features of Comb Ware: imprints of comb stamp and pits, decorated and cut inside rim. This is probably the case when Corded Ware tradition was influenced by the local one - and this can be seen in exterior imitation on the vessels.

Therefore it is worth to mention, that different variants of Comb Ware tradition are very close to each other in one of most conservative aspect of the pottery tradition - in modelling of the vessels. They are almost all formed by coiling technique. At the same time, vessels made in Corded Ware tradition are modelled from small separate patches of clay. The difference of the two pottery traditions above-mentioned proves the fact that Corded Ware was just slightly influenced by the Comb one - so we can conclude that groups of people, bearers of these traditions, did not have such closed contacts as those of Comb Ware.

The Åland Islands location in the Baltic Sea has been of importance for movements of people and ideas throughout prehistory. This is reflected by the material culture and pottery traditions on the Islands. Based on typologies and their respective areas of spread the Åland has traditionally been explained by mobility and migration.

This study challenges the traditional interpretations by examining if there is a local craftsmanship and technology in the different types of ceramics on Åland. The methods used are ICP analysis and analysis of thin sections of the clay in the vessels. The study includes early (Ka I and early Ka II) Comb ceramics, Jettibäck I and II type of Swedish pitted ware and Kiurasajärve clay tempered vessels associated with Comb Ware settlements. The analysis of the clay was carried out using petrography and XRD analysis. The pottery from different sites and areas was studied, focusing on differing areas of the Åland Islands.

The enigmatic Dolmen on the Island of Gotland

The Ansarve Dolmen in Tofta Parish on Gotland is the eastern most of its kind in Scandinavia. Dolmens and passage graves in Northern mainland Europe are associated with the Funnel Beaker culture (TB) and the Funnel Beaker culture on Gotland was widespread along the coastal areas. Previous genomics research has shown that Funnel Beaker individuals from the Middle Neolithic Pitted Ware Culture on Gotland had different biogeographic affinity to that of contemporary TB individuals from the Swedish mainland. Here we use genomics to investigate the relationship of individuals from these two different cultural contexts on the same Island, over time.

TH4-06 Abstract 08

The enigmatic Dolmen on the Island of Gotland

Author - Dr. Andersson, Anna-Carin, University of Gothenburg, Gothenburg, Sweden (Presenting author)

Co-author(s) - Götherström, Anders, Archaeological Research Laboratory, Stockholm University, Stockholm, Sweden

Keywords: Genomics, PWC, TRB

Presentation Preference - Oral

The Ansarve Dolmen in Tofta Parish on Gotland is the eastern most of its kind in Scandinavia. Dolmens and passage graves in Northern mainland Europe are associated with the Funnel Beaker culture (TB) and the Funnel Beaker culture on Gotland was widespread along the coastal areas. Previous genomics research has shown that Funnel Beaker individuals from the Middle Neolithic Pitted Ware Culture on Gotland had different biogeographic affinity to that of contemporary TB individuals from the Swedish mainland. Here we use genomics to investigate the relationship of individuals from these two different cultural contexts on the same Island, over time.
TH4-06 Abstract 10
Genomics of the people of the Baltic Sea region 4000-2300 BC
Author: Dr. Malmström, Helena, Uppsala University, Uppsala, Sweden (Presenting author)
Co-author(s): - Dr. Zaltsman, Edvin, Archeology Institute of Russian Academy of sciences, Kaliningrad, Russian Federation
Co-author(s): - Dr. Malmström, Helena, Uppsala University, Uppsala, Sweden (Presenting author)
Keywords: Corded Ware, Funnel Beaker, Pitted Ware
Presentation Preference: Poster
The general picture that has emerged from genomic pre-historic human data indicates a larger portion of differentiation between different groups than previously anticipated. One early example was the genomic differentiation observed between hunter-gatherers and Neolithic farmers. Scandinavian individuals from a Funnel Beaker farmer context were genetically closer to, for example, Funnel Beaker individuals from Germany, and to other individuals from earlier farmer context, than they were to the geographically close and contemporaneous people from Pitted Ware hunter-gatherer contexts. In this case, genetic variation seems to mirror subsistence strategies and material culture more closely than geographical proximity. This is well in accordance with previously published stable isotope data indicating differences in dietary patterns between the two groups. This implies that the hypothesis of Pitted Ware hunter-gatherers being descendants from the Funnel Beaker population is highly unlikely, considering that the two groups are as differentiated as the most distant populations of Europe today. Recently, it has also been shown that individuals from a Corded Ware/Battle Axe context, which post-dated the Funnel Beaker farmers and were partly contemporaneous with the Pitted Ware hunter-gatherers, display yet another genomic signature compared to those of the Funnel Beaker and Pitted Ware people. Corded Ware individuals from Sweden, Estonia and Germany comprise of genetic components from western hunter-gatherers, from early farmers, as well as from Yamnaya herders.

The picture of the prehistoric genomic landscape in the Baltic Sea region is still quite rough and will benefit from increased amounts of genomic data from wider geographical areas and chronologies. Our knowledge about variation within the different groups would further increase if stable isotope information could be coupled to those individuals that are genomically characterized. I will review the current status of the genomics of the people of the Baltic Sea region ca 4000-2300 as it stands at the time of the conference and aim to open up for cross-disciplinary discussions of the results.

TH4-06 Abstract 11
The settlements of the Waldburg type and the origin of Primorskaya Culture
Author: Dr. Zaltman, Edvin, Archeology Institute of Russian Academy of sciences, Kaliningrad, Russian Federation (Presenting author)
Co-author(s): - Dr. Malmström, Helena, Uppsala University, Uppsala, Sweden (Presenting author)
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Co-author(s): - Gombo, Pál, Archaeology and Ancient History, Uppsala University, Campus Gotland, Visby, Sweden
Keywords: Corded Ware Culture, Primorskaya Culture, Settlement archeology
Presentation Preference: Poster
The questions, related to the genesis of Primorskaya Corded Ware Culture, still remain the most difficult and complicated. It is ultimately determined by the lack of research in some regions.

The archeological research, started in the 50s of the XX century, allowed us to define a particular group of settlements on the coast of the Vistula Bay (Pribrezhnoye, Ushakovo 1-5) – the settlements of the Waldburg type. Their equipment greatly differs from the previously known Primorskaya Culture complexes. Unlike many other Primorskaya Culture settlements, the remains of the deepened up to 0.80 m into the subsoil and up to 35 m at length constructions are preserved in Pribrezhnoye. The main part of the eighteen C-14 datings, obtained from charcoal, bones, and hazelnut shell found in the lower and the upper levels of construction, corresponds with the interval 3100-2900 BC. These datings do not comply with the traditional concepts of Primorskaya Culture existence as it coincides with phase III of GAC. The ceramic complex accentuates the peculiarity of the monument even more. Different kinds of wide-mouthed pots with small bottoms and ear-like handles developed here instead of one of the most widespread pottery forms Wulstleistentöpfe, which can’t be found in this monument. The amphorae are remarkable for the oval shape of the neck. The amount of the beakers does not exceed the average 5-5.5%. 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 from adjoining territories, though some ware types, inherited from the previous periods, preserved.

Wood and charcoal from the lower layer in Ushakovo-3 showed the interval 2850-2700 BC. The majority of the pottery types repeat the ceramic forms from the lower level of the constructions in Pribrezhnoye. A complete identity can also be found in the environment, the reasoning work as a method when applied to the archaeological material. The results are presented in a case study of 57 documented and excavated burials from the hunter-gatherers of the Pitted Ware culture, at Västerby, Götland parish, on the island of Gotland. The results reveal that with such approach it becomes possible to analyse the relations between social structures, social practice and principles of subsistence and mobility within prehistoric societies that critically challenge traditional archeological interpretations of the Pitted Ware Culture.

TH4-06 Abstract 12
A genomic investigation of the Ansarve Dolmen on Gotland
Author: - Frase, Magdalena, Uppsala University, Campus Gotland, Visby, Sweden (Presenting author)
Co-author(s): - Skoglund, Pontus, Evolutionary Biology Centre, Uppsala University, Uppsala, Sweden
Co-author(s): - Götherström, Anders, Archaeological Research Laboratory, Stockholm University, Stockholm, Sweden
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Co-author(s): - Hågg, Christian, Archeology Institute of Russian Academy of sciences, Kaliningrad, Russian Federation
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Co-author(s): - Wallin, Paul, Archaeology and Ancient History, Uppsala University, Campus Gotland, Visby, Sweden
Co-author(s): - Skoglund, Pontus, Evolutionary Biology Centre, Uppsala University, Uppsala, Sweden
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 Pitted Ware culture (PWC) contexts on Gotland (Ajdvide and Ire) 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.
Friday, 2 September 2016, 09:00-13:00
Faculty of Philology, Room K.Donelaičio

Author - Tõrv, Mari, Tartu, Estonia (Presenting author)
Co-author(s) - Meadows, John, Centre for Baltic and Scandinavian Archaeology (ZBSA), Schleswig, Germany
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Co-author(s) - Meadows, John, Centre for Baltic and Scandinavian Archaeology (ZBSA), Schleswig, Germany

Keywords: Northern Forest Zone hunter-gatherer-fisher, radiocarbon dates, stable isotopes

Abstract

Hunter-gatherer-fishers occupied the Northern Forest Zone (the Baltic region and northern European Russia) throughout the Holocene. In addition to settlement evidence these communities left a rich mortuary record, including long-lived cemeteries with up to hundreds of inhumations. Human remains provide a remarkable isotopic archive, whose potential to reveal aspects such as diet, health and mobility at different timescales is increasingly recognised. There is also a growing awareness that aquatic foods are often 14C-depleted compared to terrestrial resources, and that to interpret radiocarbon dates from human remains we therefore need to understand individual diets.

Where isotopic signatures of potential foods are different, isotopic analysis of human remains can show differences in diet between individuals, and dietary variation within the lifetime of a single individual. Where isotopic signatures of food resources vary geographically, isotopic variations between and within human remains may show that different groups exploited distinct territories or resources, and that individuals were more or less mobile. Such reconstructions are valid only if enough samples of wild animals and plant foods, of known provenance and of the same age as the human remains, have been analysed to create relevant isotopic baselines. We also need to understand how food isotope signatures are converted into isotope signals in human tissues, and to realistically model the uncertainties in all estimates.

This session welcomes contributions on methodological developments (e.g. novel sampling and analysis techniques, reference data, modelling) and case studies in different periods during the Stone Age and geographical settings within the study region, including the transition from foraging to farming. We aim to show where most progress has been made recently, and where we have the most still to do, geographically, chronologically, and in terms of species coverage and different isotopic systems.
The Neolithization of the north European lowlands:

Archaeometric results on human remains

Author - Dr. Pleonka, Henry, German Archaeological Institute, Berlin, Germany (Presenting author)

Keywords: dietary reservoir effects, freshwater resources, incremental sampling

Presentation Preference - Oral

The freshwater shell middens at Rīnņukalns, at the outlet of Lake Burtnieks in northern Latvia, is a regionally unique site type, which apparently reflects the intensive use of local freshwater resources in the mid-4th millennium cal BC. Dietary stable isotopes in bone collagen from the crania of 3 individuals buried in the midden, and also from all 4 individuals dated to this period at the nearby Zvēniņi cemetery, suggest that adult diets were dominated by freshwater species to an extent not seen previously, and that forest and especially coastal resources were relatively insignificant, by comparison with the preceding period. Incremental sampling of dentine can provide a record of diet at a much finer temporal resolution than bone, however, and we are therefore sampling the molars of one Rīnņukalns individual to see whether it is possible to detect changes of diet and even of residence, at the quasi-annual scale permitted by this method. This approach may also allow the estimated date of death to be refined, as the radiocarbon age of collagen with a more terrestrial or marine isotopic signature will be less affected by dietary reservoir effects.

TH4-07 Abstract 06

The Neolithization of the north European lowlands:

Archaeometric results on human remains

Author - Prof. Dr. Terberger, Thomas, Lower Saxon State Office for Cultural Heritage, Hannover, Germany

Co-author(s) - Lühr, Friederich, German Archaeological Institute, Berlin, Germany

Keywords: 13C/15N isotopic analysis, Neolithization, North European lowlands

Presentation Preference - Oral

In northern Central Europe, the advance of the Neolithic way of life halted at the northern margin of the loess distribution for almost an entire millennium, before in the late 6th and 4th millennia cal BC, the farming economy started to spread into the northern lowlands. The Funnel Beaker Culture plays a key role for the question of an 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. Pličkauskienė, Giedrė, Vilnius University, Vilnius, Lithuania (Presenting author)

Co-author(s) - Kisieliūnienė, Daiva, Nature research centre, Vilnius, Lithuania

Co-author(s) - Pličkauskienė, Gytis, Lithuanian institute of history, Vilnius, Lithuania

Keywords: SE Baltic, Subneolithic, Subsistence

Presentation Preference - Oral

This paper is a critical evaluation of zooarchaeological, macrobotanical, palynological and archaeological data and their earlier interpretation in Lithuania, which served as the basis for constructing the concept of pre-Neolithic or Subneolithic low intensity agriculture and/or animal husbandry in the Eastern Baltic region. In addition, the paper presents the first direct AMS dates on remains of domestic plants and bones of domestic animals found in the Lithuanian Subneolithic and Neolithic settlements. According to the latest research, the substantial part of, or even the whole of the earlier "evidence" was wrongly forged because of the mistakes in the identification of plant and animal species and imprecise dating. The mistakes in dating were largely due to the ignorance of fresh water reservoir effect when dating bulk samples of lacustrine sediments, unrecognized of the impacts of bioturbation and palimpsest on the formation of the archaeological strata, and low attention paid to stratigraphic and spatial documentation during very extensive excavations carried out in the second half of the 20th century. So far, there is no reliable evidence that domestic plants and animals were adopted in Lithuania prior to the appearance of the Globular Amphora and Corded Ware cultures in 3200/2700 cal BC. However, that does not mean that new evidence cannot be obtained in the future, if direct AMS dating of plant and animal remains from Subneolithic contexts is to be continued, and if systematic macrobotanical analyses would eventually be made on samples from settlements in higher elevations, and not only from lakeside settlements and fishing sites.

TH4-07 Abstract 08

Zedmar Culture in the Light of 14C dates - Relating to Sub- and Neolithic Cultures in the SE Baltic

Author - Kozicki, Magdalena, Nicolaus Copernicus University in Toruń, Toruń, Poland (Presenting author)

Keywords: Bayesian modelling, subneolithic, Zedmar culture

Presentation Preference - Oral

Zedmar Culture (later: ZC) is phenomenon which absorbs researchers from one hundred years. In spite of it still it is known not more than a few peat bog sites of mentioned archaeological unit in three areas separated with not very great distances in the Northeastern Poland and in the Kaliningrad Oblast. As of today it seems like the range of the ZC is impossible to determine credibly. What is most riveting is to figure out its origins especially due to establish proveniences of pottery making. This is because it seems the ZC was one of those archaeological cultures whick mixed ceramic traditions (probably not only them) from both – agricultural and hunter-gatherer-fishers worlds.

To this day there is no 14C radiocarbon dates estimated and published for sites of the ZC. What is more important main groups of it where taken as a series from stratigraphical record from two epicomnic sites. This allows to use Bayesian modelling in creating absolute chronology of the ZC. It is worthwhile to mention that there are sets of 14C measurements taken from pottery sherd, which were carried out in different traditions, and they also may be combined in some statistical calculations. Bayesian statistic have been used in analyzing and interpreting radiocarbon data for a quite long time and is quickly developing part of archaeological research. Yet there is many obstacles in correct appplying and understanding its results, mainly due to radiocarbon dating disadvantages. In case of the ZC peat bog site's stratigraphy is also an difficulty. Although after analyzing all of accesible data it is possible to establish a chronology of ZC. Moreover it enable to correlate it with other subneolithic cultures from the Southeast Baltic region (like Narva, Neman, Pitt-Comb Ware cultures). There are available radiocarbon measurements for all of them however in diversified amount specially depending on a region and ceramic style.

What is most important is to consider also climatic impact onto the ZC particularly the Funnel Beaker Culture group. It is necessary to get more 14C dates for establising the discussion of the ZC. What will be used in the study. Noticeable set of its radiocarbon dates constitutes one of the best backgrunds for joining into discussion for pottery's origin in the ZC.

TH4-07 Abstract 09

Human occupation of the SE Baltic region: first trends from the middle- upper paleolithic transition

Author - Dr. Dziedzina, Olga, Vytautas Magnus University of Music and History, Klaipėda, Lithuania (Presenting author)

Co-author(s) - Molodkov, Anatoly, Research Laboratory for Quaternary Geochronology, Institute of Geology, Tallinn, Estonia

Keywords: Luminescence Dating (IR-OFL), Middle-Upper Paleolithic, MIS 3

Presentation Preference - Poster

The territory of the south-eastern Baltic region might be described as lying on the margins of the classical Paleolithic world. No Middle and Upper Paleolithic sites have been found so far in this part of Europe, and on the basis of available data the initial habitation of the region has been related to the Bugian warming or Greenland interstadial sub-stage G1-ta, which began in northern Europe at about 14.7 cal kBP. The recent discovery of traces of human occupation at the Ryderado-5 archaeological site (north-eastern part of the Kaliningrad region RF) has made possible a significant revision of our understanding of the early colonization of this territory. The luminescence (IR-OFL) 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 Ryderado site among the most ancient sites of the transitional period from Middle to Upper Paleolithic in Europe such as Kostenki 12 (53–52 ka), Klykve 1 (35–47 ka), Willendorf II (~43.5 ka), Gaisenkloster I (~43–42 ka), Kent’s Cavern (~44.41 ka), etc. At the same time, the Ryderado site is the most northern (55°1'01" N) of all those mentioned above. Further north the only sites with slightly younger artefacts are found along the western flank of the northern Ural Mountains: Mamontovaya Kurya (~43–40 BP) and Zaozyer' (~39–37 ka BP).

The lithic assemblage of the Ryderado site comprises more than 2000 flakes and includes various kinds of tools, but the chronology of the site has been established with confidence, the cultural attribution of the flint assemblage has yet to be identified. In the concerned time period, three groups of assemblages have been assigned to the earliest modern peopling of
Evidence that fishing was a central element of the Mesolithic subsistence economy, both at Zamostje, and at other sites is supported by the discovery of marine isotope, which suggest only limited consumption of aquatic resources, despite the abundant artefactual and archaeozoological evidence for organic preservation, and the recovery of millions of animal bones from the five cultural layers. Aside from a woman's humerus, no remains of fish were identified, indicating that aquatic species were not regularly consumed.

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 diet, it is unclear whether the culturally modified loose human bone belonged to an atypical individual, or whether the excellent preservation of fish remains and fishing structures gives an exaggerated impression of the importance of aquatic resources at this site.

TH4-08 Abstract 02

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

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” (Stormaktstiden). 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 new era, known as “The Swedish Age of Greatness” (Stormaktstiden). 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 new era, known as “The Swedish Age of Greatness” (Stormaktstiden).

The design was very modern with the continental idea of an ideal plan protected by massive fortifications. The construction of these fortifications lasted for more than 100 years and are generally described in three stages. This paper will give an archaeological perspective of this massive project and show how continental theories of fortification were applied and customized for the local conditions.

TH4-08 Abstract 01

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Keywords: Construction, Fortification, Kalmar
Presentation Preference - Oral
The town Kalmar is situated in the southeast of Sweden and was together with Gotenburg and Jönköping the most important 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 progressed over 20 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.

TH4-08 Abstract 03
The Strong Link in the Chain? Jönköping Castle - a Swedish border fortress with hidden defects
Author - Peterson, Claes B., Jönköping County Museum, Jönköping, Sweden (Presenting author)
Keywords: Conflict, Fortification, Siege archaeology
Presentation Preference - Oral
In the beginning of the 17th century the vulnerable southern border of Sweden was defended by modern fortresses. While Kalmar and Eldhöborg protected the coastline, Jönköping castle should secure the inland routes towards the central parts of the realm. The site was strategically well suited being a major crossroad with access to waterways.

The castle was originally a Franciscan convent, taken over by the Crown after the Reformation and fortified with walls, dry moats and corner towers. Vastly enlarged and modernized in the first half of the 17th century, this artillery fortress and its outworks covered an area of 10 hectares. From contemporary plans and drawings it is obvious that these defenses were built according to the latest principles in the art of fortification.

However, recent excavations and extensive GPR-mapping of the ruins have given reasons to doubt the battle-worthiness of this major border fortress. While written sources speak of cracks in the masonry and crumbling walls, archaeological observations of insufficient foundations and poor craftsmanship points in the same direction. It is questionable if the castle could have resisted a serious siege. Within lies the paradox of Sweden as a military state - its great ambitions in conflict with limited resources.

TH4-08 Abstract 04
The bastions of Christian 4th
Author - MA Simonsen, Rikke, Copenhagen Museum, Copenhagen V, Denmark (Presenting author)
Keywords: Baltic region, Fortifications
Presentation Preference - Oral
Christian 4th is considered one of the most influential Danish kings. From 1598-1648 he ruled the kingdom Denmark-Norway, which included the southern part of Sweden and the islands of Gotland and Saaremaa. This gave Christian 4th control of the waterways to the Baltic Sea and a huge profit on the Sound toll – an important factor in the King in fighting for the Baltic Sea domination and engaging the country in several wars.

Christian 4th made great effort to modernize the fortifications of the realm introducing the bastioned fortification on a big scale. He built more than 30 fortresses and fortified towns within today’s Denmark, Norway, Sweden and Estonia.

This paper wants to look into what concerns influenced the king’s strategy of building fortifications which had a strong focus on the Baltic region. Was the king demonstrating a general plan for the safety of the realm or was he reacting to sudden and changing threats? Many plans were made for building new fortifications and renovating old ones. Why were the plans carried out in some places but changed or given up in others? Were finances, incompetence, enemy threats or international politics responsible for the fate of the fortifications?

TH4-08 Abstract 05
The Early Modern Fortifications of Halmstad
Author - Lena, Bjugger, Regional Museum Halland, Halmstad, Sweden (Presenting author)
Keywords: early modern, fortifications
Presentation Preference - Oral
Halmstad, situated in the former eastern part of the Danish kingdom, was from the beginning of the early 14th century a simply fortified town built on royal ground. Had a strategic position by the mouth of the river Nissan and the important road that led to the Swedish town Jönköping. Halmstad was also situated in a province that was bounded by Sweden. Several times during the 15th and the beginning of 16th centuries the town was forced to open the gates for the Swedish army. Halmstad was reinforced in the middle av 16th century and a new fortification was erected between 1588-1605 under the leadership of the Dutch master builder-architect Hans van Steenwinkel and after his death in 1601 succeded by Wilum Cornelessen. The layout of the new fortification system made it possible for the Danish king Christian IV to rebuild the town with a reinaissance plan after a devastating fire in 1619. The defensive works was reinforced during the following decades. Through the Peace Treaty in Brömsebro 1645 Halmstad and the province of Halland became Swedish. The fortifications were maintained during the end of 17th century but started slowly to dispartate 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 be dedicated to posters example 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 funtions. Even if the inhabitants have been better protected the fortifications created practical problems and forced people to change their habits.

TH4-08 Abstract 07
From earthworks to scars of the cold war - 500 years of coastal defence on Gotland
Author - PhD Svedjemo, Gustaf, Uppsala University, Uppsåby, 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 inhibitors and long coastline of around 560 km, hard to defend from invaders. There are a few good natural harbours, of which the most seem to have been defended by fortifications in some form from historical times up until the 21st century, with some breaks. The remains of most of them are still visible in the landscape.

This presentation is about a new research project, just started about coastal fortifications on Gotland from early modern times up until the turn of the new millennium, when all coastal fortifications and fixed coast artillery batteries where closed down, not only on Gotland, but in all of Sweden. This covers a period of nearly 500 years, but this presentation will mostly deal with the early modern times.

The project was initialized by an observation of some symbols and notes in a historical map from 1694 which is to my knowledge not discussed before. In the map are three 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 swinging to and fro between Denmark and Sweden. There are no visible traces at the sites today.

In the military archives there are some interesting fortification maps, over all or parts of Gotland, and several detailed blue prints of fortifications, from the 18th century. One map and some blue prints are made by the land surveyor and lieutenant of the fortification Jan Mattias Soderlind 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 1611, ordering the Danish governor of Gotland to put all sconces fallen in decay by the countryside harbours in order, but when the first fortifications was erected is unknown, which we hope be able to answer.

TH4-08 Abstract 08
Kuressaare fortress (Estonia) as an example of the transformation of bastion fortifications
Author - Nurk, Ragnar, Tallinn University, Aruküla, Estonia (Presenting author)
Keywords: 17th century, Baltic Sea hegemony, bastion fortifications
Presentation Preference - Oral
Recent archaeological investigations have revealed, that the development of the bastion fortifications of Kuressaare fortress was more complicated than has been presumed.

Kuressaare, located on the Saaremaa Island in the Baltic Sea, is one of the few medieval fortresses in historical Livonia where the modernization of the fortifications continued also after the Livonian War (1558–83). It was a foothold, in succession, of Denmark, Sweden and Russia.
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 ramps. Although the core of the defense principle of bastion fortifications – perfect flanking defense – did not change, the methods to achieve it were considerably improved during the 17th century. Archaeological investigation allows us to get a glimpse of what it meant constructionally, and analyze the fortification-theoretical arguments for these costly and labour-consuming undertakings. Inside the rampart on the borderline: Lava fortress in 17th century with the capital city and main fortress, Stettin and the entire estuary of the Oder river. But all of Pomerania was again a witness. The Duchy of Pomerania, after the death of the last duke from the House of Griffins in 1637, was the scene of a struggle between

**TH4-08 Abstract 08**

**Inside the rampart on the borderline: Lava fortress in 17th century**

**Author**: Professor Seln, Adrian, Higher School of Economics, St. Petersburg, Russian Federation (Presenting author)

**Keywords**: Lava fortress, Rampart, Russian-Swedish border

**Presentation Preference**: Oral

After Stolbovo Treaty 1617 the new border between Swedish Kingdom and Muscovy was traced. For about 10-12 years the border was not guarded. Some special system of border control appeared only in Autumn 1629 and then developed into very complicated version. The road between Muscovite fortress Ladoga and Swedish fortress Nothenburg (former Oreshek) after 1617 was divided into two parts lying in two states. The border was the river Lava. There on a high bank of small river a hillfort appeared in about early 1620s. It had temporary garrison (in 17th century from 20 to 200 persons). In 1657 a significant battle between Swedes and Muscovites was there nearby hillfort. After the Great Northern War it lost its significance. The ruins of the hillfort [situated near the village Goroditsche] was archaeologically studied. The rampart was built in two periods using some wooden constructions two times. The inside part of the hillfort was practically free of cultural layers. The inside part of the rampart was added with significant earth structures that did not allow the rampart to destroy the hillfort. The problem is in dating. The ceramic material belongs to 16-17th cc. and is connected with local ("Oreshki") 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.

**TH4-08 Abstract 09**

**Breaching walls and sinking ships: experimental evidence for the performance of 17th-century heavy artillery**

**Author**: Phd. Hedvig, Fred, Vasa Museum, Stockholm, Sweden (Presenting author)

**Keywords**: Gun, Siege, Experimental archaeology

**Presentation Preference**: Oral

In 2014, the Vasa Museum carried out an extensive field trial of a replica 24-pounder bronze demi-cannon, based on those found on the warship Vasa. The gun was developed in 1620 as a mobile heavy field piece, adapted to naval use in 1628 for Vasa and her sister ships. This gun later equipped both the largest warships and field artillery units during the Thirty Years War, ending it service career as a fortress gun in Sweden’s Baltic outposts. A two-week program of fire revealed not only the ballistic characteristics of this type of artillery, but trials against a replica section of ship structure demonstrated that conventional interpretations of the effect of cannon fire on warships is oversimplified. This paper presents the results of the tests in the context of how such guns might have been used against both ships and shore installations.

**TH4-08 Abstract 10**

**Prussian, early modern fortification in Pomerania, a result of the Prussian - Swedish struggle**

**Author**: PhD Podruczy, Grzegorz, Adam Mickiewicz University, Slubice, Poland (Presenting author)

**Keywords**: Fortification, Pomerania, Prussia

**Presentation Preference**: Oral

The Duchy of Pomerania, after the death of the last duke from the House of Griffins in 1637, was the scene of a struggle between Prussia and Sweden. Initially the duchy was divided into two parts – Prussian Farther Pomerania, and Swedish Hither Pomerania. But as a result of the Swedish defeat in the Great Northern War in 1720, Prussia also won a large part of Hither Pomerania, with the capital city and main fortresses, Stettin and the entire estuary of the Oder river. But all of Pomerania was again a witness to Prussian-Swedish hostility during the Seven Years’ War. Its last act was the annexation of Swedish Hither Pomerania with Stralsund in 1733. One of the key factors for this struggle were the fortifications. They were built during the wars (field fortifications) and during peacetime as well (fortresses, autonomous forts or sconces and fortified cities). Siege warfare assumed an important role in the wars.

The main stress in this paper will be on the presentation of the activity of the Prussian side of the conflict, mainly in the area of construction of new permanent fortifications from the last half of 17th century through the first half of the 18th century. This large period is divided into two smaller ones. The first, between 1648 and 1720, Prussian activity was focused on securing the farther Pomerania. Its main city and most important fortress was Kolberg. The bastion fortifications of this city were already built by Swedish forces during the last stage of the Thirty Years’ War, but the Prussians thoroughly rebuilt it during the long modernization between 1655 and 1716. Apart from Kolberg a fortress in Rügenwalde was not planned, but never built. The main achievement of the second period was the modernization of the fortress at Stettin. It lasted only fifteen years (from 1725 to 1740), but was very intensive, more than half of the Prussian engineering corps was involved in this large construction site. Just as in the previous period, also after 1720, another fortress was considered (in Stargard), but it also was never built. After 1720 the Prussian engineers had to handle the problem of a large number of smaller and weaker fortified corpses in the Hither Pomerania, “inherited” from Sweden, such as cities with bastion fortifications (Wolin, Dam, Cammin in Pomern, Neu Warn, Demmin, Dammgarten and Anklam), or single strongpoints such as sconces in Pernemund, Ankämle Fehr, Beinemeund and Divone. Only some of them were modernized (Pernemund and Ankämle Fehr Schanzen) but all of them were preserved until the second half of the 18th century, and even took an active part in the Seven Years’ War.

In the projects of Prussian fortifications in Pomerania different solutions are visible; traditional (passetsames for guns in the flanks of bastions in Rügenwalde); modern, French inspired, connected with the activity of Huguenot engineers such as Cayart or Montagues, and the solutions influenced by Scandinavian military architecture (powder magazines in Stettin, similar to those in Copenhagen).

**TH4-08 Abstract 11**

**Sveaborg (Suomenlinna), an 18th century sea fortress and the importance of water areas**

**Author**: MA. PhD Student Kvisvik, 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 ruinous wars in 1700-21 (The Great Northern War) and 1741-43 (The Russo-Swedish War) where Sweden lost easternmost regions along with old fortifications. 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. Helsingfors (Helsinki) and Degerby (Loviisa) were competing with each other, and surprisingly waterways and water areas became one of the issues of discussion. Finally, the archipelago in front of Helsingfors was chosen, and fortification was originally built on six bedrocks isles following a bastion system, which was freely applied according to natural forms of the landscape. With my forthcoming doctoral dissertation, I have been considering what is the footprint of this decision of the location of the fortress in the underwater landscape.

**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, Matt, Rö Göteborg Natur- och kulturkooperativ, 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 frequently documented, and in that case particularly by the victors. 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 castle is an important and widely known part of Swedish history and is best known for two exceptionally large tributes paid during this siege.

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. 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. 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.
in connection with the Nordic Seven Years War (1568-1570) and the Kalmar War (1611-1613). These wars were two major conflicts between Denmark and Sweden as a result of both countries’ constant rivalry for dominion in the northern part of the Baltic region.

Between 2003 and 2006, Gothenburg City Museum conducted a series of excavations at the Älvsborg Castle. The excavations aimed at examining structures belonging to the castle’s early modern fortifications. Some features were revealed, such as a glacis, the moat, and the covered way. In addition to these, an extensive assemblage of artifacts that can be directly linked to the Danish siege of Älvsborg 1612 was recovered. The artifacts consisted of a range of ordinance, including lead bullets, cannonballs, parts of rifles, fragments of grenades. In connection with the besieging aspect of siege archaeology, the excavations also uncovered remains of a besiegers approach (saep), and mines, and one of the castle’s defenders’ countermines.

During this project it has been possible to link some of the archaeological remains to actual events described in the historical sources therefore strengthening the actual narrative.

TH4-08 Abstract 13
The Outdating of Medieval Fortifications – The Castle of Raseborg and the Town Wall of Vyborg

Author: PhD docent Haggren, Georg, University of Helsinki, Espoo, Finland (Presenting author)
Keywords: Castle, Town wall, Fortifications, Medieval
Presentation Preference – Oral

The castle of Raseborg (Finland) and the town of Vyborg (Russia) both locate on the northern coast of the Gulf of Finland. Raseborg was built in the 1370s by the Swedes and during the next 150 years the castle was gradually enlarged. The town of Vyborg situated close to the eastern border of the Swedish realm and it was continuously threatened by the Russians. There was an older castle close to the town of Vyborg but in the 1470s the town itself was fortified too. From now on high walls surrounded the medieval town.

When Raseborg was founded fire arms were not yet in use along the northern Baltic Sea. A century later when Vyborg was surrounded by the walls fire arms were known but on those days most of them were light weapons making no harm to stone structures.

In dawn of the early modern era or the early 16th century, the role of the fire arms had changed. New guns were heavier and more effective than the earlier ones. Simultaneously the range of the fire arms had become much longer. Old medieval fortifications offered not anymore a safe heaven. The new era meant remarkable changes for the old fortifications. The castle of Raseborg had lost its military importance already in the 1520s. In 1550 King Gustaf Vasa made a decision to abandon the old castle and build a modern one called Helsingborg in his new town called 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.

TH4-08 Abstract 14
The fortifications of Copenhagen: The western boundary as seen at Rådhuspladsen (Townhall square)

Author: Lynne, Ed, Museum of Copenhagen, Brønshøj, Denmark (Presenting author)
Keywords: Bastion, City Gate, Fortifications
Presentation Preference – Oral

Prior to excavations carried out at Rådhuspladsen in 2011/2012, relatively little was known with certainty about Copenhagen’s former western boundary. What knowledge was available mainly stemmed from cartographic sources and historical references, as well as present day street layout (particularly Vester Voldgade). The first map however was only drawn in 1590, and the first historical references for this area date to the later 1530s, when Vesterport (the western gate) is mentioned for the first time. Part of the aim of this excavation was to confirm or reject existing ideas about the city’s border to the west, where it was placed, how it was constructed and when, and how it changed through time.

The excavations at Rådhuspladsen carried out in advance of the Metro Cityring, offered an unprecedented opportunity to examine the remains of the fortifications along Copenhagen’s western boundary, and as will be discussed here, the evidence unearthed has been extensive and very illuminating regarding the ongoing changes made to this boundary through the centuries.

The historical evidence, previous archaeological observations and the new evidence as documented in 2011/2012 will all be outlined, in an attempt to achieve as complete an account of the story of this boundary as possible.
Archeology of the Baltic region

PAST ANIMAL AND HUMAN RELATIONSHIPS AROUND THE BALTIC

TH4-09

Friday, 2 September 2016, 09:00-16:00
Faculty of Philology, Room 107

Author - Kirkinen, Tuja, University of Helsinki, Helsinki, Finland (Presenting author)
Co-author(s) - Daugora, Linas, Klaipeda University, Klaipeda, Lithuania
Co-author(s) - Bartosiewicz, Łukasz, Stockholm University, Stockholm, Sweden

Presentation Preference - Regular session

Geographical definition: The Baltic Sea area has a long joint history. Animals have been an integral part of this shared past as sources of food and other raw materials. Beyond the utilitarian exploitation of both game and livestock, there is also ample evidence indicating the ritual significance of animals.

Disciplinary aspects: Following human colonization after the Ice Age, human-animal interaction began leading to the intensification of animal exploitation. The introduction of the first domesticates is of particular interest at the advancing edge of the cultivation zone in Europe. Animal exploitation evolved synergistically with other aspects of material culture such as the improvement of hunting weapons and the development of various butchering techniques all attested in the archaeological record. Meanwhile the symbolic and ritual significance of animals in religious contexts also kept changing as is shown – among others - by richly furnished burials (boat burials, cremation graves, equestrian cemeteries).

Impact on research policy: Advances in archeology in various Baltic countries richly illustrate the importance of animals during this shared past. Preliminary surveys among potential participants indicate concrete interests in early prehistoric subsistence, the typological analysis of animal burials as well as the wild animals in Iron Age death rituals. Regional trade in animals and animal products is also of interest in all archaeological periods. Moreover the session will offer an opportunity for internationally comparing and integrating cutting-edge research methods used in the study of animal remains (digestible stable isotopes, soft tissue identification, aDNA) with current advances in archaeology. Responses from Estonia, Finland, Lithuania, Poland, and Sweden have already indicated this possibility. As Lithuania itself falls within the region of interest, this session would create a unique opportunity to foster new contacts and consolidate old ones as well as promote archeological studies toward the broader community of archeologists in Europe.

TH4-09 Abstract 01

Bioarchaeology in action – a multidisciplinary approach on animal remains in ritual contexts

Author - PhD Mannermaa, Kristiina, University of Helsinki, University of Helsinki, Finland (Presenting author)
Co-author(s) - MA Kirkinen, Tuja, University of Helsinki, University of Helsinki, Finland

Keywords: interpretation, material studies, rituals

Presentation Preference - Oral

Archeology has produced a remarkable amount of bioarchaeological material and data from ritual contexts (e.g., burials, offering sites, rock art sites). This material mainly consists of organic materials, e.g., bones, teeth, antler, hair and fur. The basic materials to study such materials - identification, qualification and quantification - have been adopted from biological sciences. Such material data, reflecting practices and studied with natural scientific analyses, form a basis for understanding elements in the past human-animal relationships. However, the data as such rarely allows us to understand the intentions or significances of these practices, and approaches to interpretation of such data vary. In order to search for better ways to understand the meanings of practices, a multidisciplinary initiative was launched at the University of Helsinki in January 2016. This initiative will gather together the researchers of archaeology, study of religion, linguistics, folklore and ethnography in order to find fresh interpretations of bioarchaeological data and the prehistoric hunter-gatherer cultures the data presents. In this paper we present the main aims, methods and goals of our project.

TH4-09 Abstract 02

Wild mammals in culture and landscape of the medieval Poland

Author - MA Wieczak, Jan, Nicolaus Copernicus University in Torun, Torun, Poland (Presenting author)
Co-author(s) - Prof. Makowiecki, Daniel, Nicolaus Copernicus University in Torun, Poland

Keywords: archaeozoology, hunting, Poland, wild mammals, Middle Ages

Presentation Preference - Oral

This paper addresses the question of wild mammals and its significance to life of societies living in Poland during the Middle Ages. Several publications about particular species have been published so far mostly in Journal Archeozoologia in 70's and 80's. There are also two archaeozoological works about past Polish fauna by Piotr Wyrzyk (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 ethnographic knowledge. It will be possible thanks to considering the time, space and category of archaeological contexts. Therefore the picture of medieval hunting, which was strictly related to the social status, will be possible to obtain. In this context it is important to emphasize special species such as red deer, elk, wild boar or brown bear. Crucial role played also aquatic mammals like beaver and otter, and its use as a fun-bearing animals. Apart from considerations on cultural aspects some osteometrical 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, inhumation burials, wild animals

Presentation Preference - Oral

The role of big game hunting among Iron Age boreal zone farmers. Alces alces and Rangifer tarandus in bioarchaeological assemblages at Iron Age and Early Medieval sites in South-East Fennoscandia.

This paper aims to discuss the role of big game hunting among the Iron Age farming populations in the southern half of Finland and West Karelia (Russi), South-East Fennoscandia. In Finland the importance of hunting and fur trade as supplementary economies have been considered an outgrowth of area’s location at the northernmost limits of the cultivation zone in Europe. In recent studies hunting is hypothesized to have continued as the main subsistence strategy especially in Finnic 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 fennoicus and Alces alces skin and hair remains found in archeological assemblages up to the 17th century. Although the results are based on a somewhat heterogeneous and fragmented body of source material, they underline the importance of hunting and wild animals in the Late Iron Age and Early Medieval world.

TH4-09 Abstract 04

In search of an animal skin: applying SEM for the soil of the perttulanmäki Corded Ware grave, Finland

Author - PhD Vajanto, Krista, Nanomicroscopy Center Aalto University, Espoo, Finland (Presenting author)
Co-author(s) - MA Ahola, Marja, University of Helsinki, Helsinki, Finland
Co-author(s) - MA Kirkinen, Tuja, University of Helsinki, Helsinki, Finland

Keywords: animal hairs, Corded Ware grave, SEM

Presentation Preference - Oral

In the acidic soils of Finland, where organic materials from Stone Age are only rarely preserved, the Perttulanmäki Corded Ware grave is an important exception. In November 2015, we conducted new microscopic analyzes to the archived soil samples taken from the grave. By taking the SEM micrographs, we detected mineralized animal hair remains and identified them as belonging to the Cervidae family. In this context it is important to emphasize special species such as red deer, elk, wild boar or brown bear. Crucial role played also aquatic mammals like beaver and otter, and its use as a fun-bearing animals. Apart from considerations on cultural aspects some osteometrical observations will be performed. Measurements will be used for detecting the diachronic and synchronous trends in body size changes.

TH4-09 Abstract 05

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, inhumation burials, wild animals

Presentation Preference - Oral

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TH4-09 Abstract 06

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Author - PhD Vajanto, Krista, Nanomicroscopy Center Aalto University, Espoo, Finland (Presenting author)
Co-author(s) - MA Ahola, Marja, University of Helsinki, Helsinki, Finland
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Keywords: animal hairs, Corded Ware grave, SEM

Presentation Preference - Oral

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TH4-09 Abstract 07

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, inhumation burials, wild animals

Presentation Preference - Oral

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TH4-09 Abstract 08

In search of an animal skin: applying SEM for the soil of the perttulanmäki Corded Ware grave, Finland

Author - PhD Vajanto, Krista, Nanomicroscopy Center Aalto University, Espoo, Finland (Presenting author)
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Keywords: animal hairs, Corded Ware grave, SEM

Presentation Preference - Oral

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TH4-09 Abstract 05
A critical appraisal of using relative bone weights of reindeer from archaeological sites

Author - Prof. Bartosiewicz, Łaszlo, 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 digestion. Fragment weights have remained underestimated in developing such methods. The argument against their uncritical use is the changing specific weight of bone during diagenesis which precludes estimating absolute quantities of meat and even comparisons between bone deposits of different preservation.

Reichstein (1994) used the relative weights of elements in complete skeletons for cattle, sheep and pig as standards in analyzing the summarized fragment weights of elements in archaeological assemblages, presuming that the criterion of homogeneous preservation is met. Aside from NISP, weight 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 percentual proportions weight distributions in archaeological assemblages can be compared. Bone measurements taken on the same standard individual can provide a basis for log size index (LSI) calculations, by which the few surviving bone measurements in the archaeological material can be compared to those of the reference specimen.

Given the methodological concerns involved ranging from taphonomic issues to intraspecific variability a SWOT analysis of the relative weight method was carried out to appraise its applicability to reindeer.

TH4-09 Abstract 06

Swine and ritual at the turn of fourth millennium BC on the Polish Plain

Author - MA Lisowski, Mikolaj, University of Sheffield, Sheffield, United Kingdom (Presenting author)

Keywords: Neolithic, Poland, Zooarchaeology

Presentation Preference - Oral

The paper explores the role of pig in ritual communities associated with Globular Amphora Culture (GAC) at the turn of 4th millennium BC on the Polish Plain. Distinct ceremonial practices involving domestic animals are well-documented at sites linked to this culture, including commonly documented practice of so-called cattle burials. Pigs play also an important role for GAC communities, and are also present in burial practice; however, the role of this species in other ritual activities, including feasting, is largely under-explored. Taking into account new evidence from Globular Amphora Culture at Widziszewo in Greater Poland region we aim to explore this issue. The deposit excavated in one of pits at this site consisted of a tight cluster of remains of six pig carcasses, disarticulated and consumed in distinctive and standardised manner during a short- time event. The evidence from Widziszewo represents hitherto undocumented aspect of ritual activity of GAC communities, and has no direct analogues in the Polish Plain. Based on the data, it is possible to trace the significance of pig as an animal consumed and/or deposited in ritual contexts of GAC. Particular emphasis is put on differential treatment of pig body parts: depositing heads in human burials (e.g. in Chodziez), and communal consumption of carcasses (as documented in Widziszewo). This issue will be a subject for further research to determine whether it was a widely applicable rule or a single instance.

TH4-09 Abstract 07

Cluttered faunal remains from a Roman Iron Age burial mound in Sweden: a taphonomic perspective

Author - Stella, Bettina, Stockholm University, Uppsala, Sweden (Presenting author)

Presentation Preference - Oral

The area of Fullerö, north of Uppsala has been subject to numerous archaeological excavations. Artifacts and structures demonstrate a long continuity from Neolithic times and onwards. Finds datable to the Roman Iron Age (1st to 4th century AD) dominate the context. Investigations in 1934 concerned a burial mound in the southern part of the area (RAA 163:1). It contained a Roman Iron Age chamber tomb. Excavations yielded various precious finds, as well as human and animal remains. Artifacts and bones (mainly unburned) were unevenly spread out in the fill of the mound. 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 artifacts and human remains have been closely studied and interpreted, the faunal remains were only mentioned tangentially. Animals were common burial gifts in Swedish prehistory, deposited as complete individuals or food offerings. Unfortunately, looting as well as contemporaneous and later activities on the site have hampered a straightforward interpretation. An advanced approach, contextual taphonomy, was thus used to analyse the faunal content of the chamber tomb and to distinguish effects of later activities.

The identification and quantification of the remains will be accompanied by a comprehensive analysis of e.g. fragment size, weathering and fracturing. The matter is challenging and complex, but it is hoped that contextual taphonomy might offer a means to approach faunal remains in disturbed archaeological settings. This study will thus contribute to the discussion about the ritualization of animals during the Roman Iron Age and demonstrate the possibilities and limitations of archaeozoology today.

TH4-09 Abstract 08

Animals of the living and the dead. Animal bones of Iron Age burials and settlement at Old Uppsala

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Keywords: animal bones, cremations, social zooarchaeology

Presentation Preference - Oral

Around the Baltic Iron Age burials animals reflect the importance of animals to humans in the Pre-Christian societies. Burials and ritual depositions of animal bones reveal complex social and symbolic relationships between humans and animals beyond the use of animals as a food source. It is evident from several studies that animals had different social and symbolic significance for the living and for the dead in the burial rites. Excavations in Old Uppsala, Sweden of a Late Iron Age settlement with a large contemporary cemetery have resulted in unusual conditions to study the animal and human relationship. A comparative study of faunal remains from settlement and burial 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 absence of domestic animals, but also on 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 animal to express status and/or identity, but also consider religious symbolic meaning of the animals. The relationship between animals and humans in Old Uppsala will be related to regional and inter-regional trends.

TH4-09 Abstract 09

Sámi animal offerings, changing religious practices and human-animal relationships

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Keywords: animal offerings, reindeer domestication, Sámi archaeology

Presentation Preference - Oral

In recent years, archaeological excavations have been conducted on Sámi offering sites (dating ca. 11th to the 17th centuries) in Finnish Lapland. Moreover, 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 ritual, religious change, and human-animal relationships among the Sámi. We argue that there was a change in the offering tradition, interwoven with changes in the subsistence economy and especially reindeer domestication. Our results indicate that reindeer domestication, acknowledged to have had a major impact on social organization and economy, was also a major factor in the transformation of Sámi indigenous religion. However, the underlying nature of the offering tradition remained consistent although the focal species of economic and religious interest changed.
TH4-09 Abstract 10
Reindeers in Lithuania: a technological study of antlers artefacts

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Keywords: Lithuania, Lyngby type axes, reindeer antler
Presentation Preference - Oral

In the Lithuanian territory found 32 skeletal bones and manufactured artefacts of reindeer (Rangifer tarandus). Between them in 2014-2016 three Lyngby type implements made out of reindeer antler were found within territory of Lithuania. One of the Lyngby type artefact dating back to the 44000 to 42000 BC, the other two - 12 000 BC - to Late Allerød - Younger Dryas period. All other articles dating to Younger Dryas period. Trisotopologic, stable isotope, radiocarbon dating, morphological examination on the implements carried out in Klaipėda University laboratories tells us that the one of them was made out of adult reindeer antler and was used as an axe. Wear marks indicate their use as a working tip. The other two was made of reindeer and was used as a hammers connection with leather and fur. Portable Confocal Scanning Light Microscope and Computer tomography scan of a reindeer antler artefacts illustrated of the anisotropic orientation of mineralized collagen fibers. These studies demonstrated the hierarchical structure of reindeer antlers. The trabecular bone is anisotropic, with aligned channels directed parallel to the long axis of the antler beam. Technological research has shown that stoutness articles, as Lyngby type axes, were made of reindeer male antler and hammers - from female antler, because both sexes are members of the same species, and the properties of their antlers could, therefore, have emerged under similar pressures and constraints through evolution. This is confirmed by a reindeer antlers made of hardware functional purpose, which is to date the Northern European researchers were not analyzed until now.

TH4-09 Abstract 11
Late Neolithic V-perforated buttons from a female burial in SE Poland - revisiting a case study

Author - Wrincka, Kinga, University of Wrocław, Institute of Archaeology, Wrocław, Poland (Presenting author)
Keywords: Bell Beakers, osseous materials, personal adornments
Presentation Preference - Oral

The aim of this paper is to revisit a case study presented at the 21st Annual Meeting of the EAA in Glasgow in 2015 using results from all analyses conducted and offering an interpretation on their basis. During my presentation in Glasgow I argued that in regard to small and weathered finds it is often impossible to identify the raw material only by macroscopic evaluation but the use of low-invasive archaemetrical techniques (conventional microscopy, SEM, microCT) can reveal structural micro-features and properties facilitating raw material identification. It was so in the case of eleven V-perforated bone buttons from a Bell Beaker female grave found at the Sandomierz-Zawichost Hill site in south-eastern Poland. Low power microscopic approach revealed qualitative features indicating that the osseous material used in the manufacture of these buttons might be animal dermal (ivory). If confirmed, it would link this eastern Bell Beaker enclave to the Iberian Peninsula, where the use of ivories for the manufacture of V-perforated buttons is well-known.

In order to test this hypothesis, different analytic non-destructive and low-invasive techniques of imaging and morphometrics were employed: conventional microscopy (high and low power approach), scanning electron microscopy with energy-dispersive X-ray spectroscopy (SEM-EDS) and micro-computed tomography (microCT). The results were cross-checked using Zooarchaeology by Mass Spectrometry (ZooMS) method, developed at the BioChem laboratory of University of York, United Kingdom.

Combined results showed that V-perforated buttons from the Sandomierz-Zawichost Hill site were made of cortical tissue with a fringe of cancellous tissue from a long or a flat bone (e.g. scapula) of genus Bos (domestic cattle or wild aurochs). It is consistent with what is known about Bell Beaker animal bone assemblages from Central and Eastern European context where cattle bones are the most numerous category of bone.

Although the material is not exotic and as such it does not directly link the Polish Bell Beaker southern group with the Iberian Bell Beakers, it is interesting in terms of bone technology and its significance. In this case it can be argued that the choice of this particular material for the manufacture of V-perforated buttons is meaningful - the buttons are made from a bone (or bones) of familiar animal; this material was easily attainable and manifested mechanical properties known to the artisan. The raw material choice can be thus seen as a conservative act perpetuating familiarity and stability within the group to which the wearer belonged.

This study shows that a comprehensive low-invasive analysis of small and weathered artefacts can facilitate raw material identification and, subsequently, highlight issues connected with the raw material selection and its significance in the past societies.

TH4-09 Abstract 12
From Mesolithic to nowadays – few minutes on recent advances in Estonian zooarchaeology

Author - Raimea, Eve, University of Tartu, Tartu, Estonia (Presenting author)
Co-authors - Lõugas, Lembi, Tallinn University, Archaeological Research Collection, Tallinn, Estonia
Keywords: Animal husbandry, Estonia, Zooarchaeology
Presentation Preference - Oral

During the last few years Estonian zooarchaeology has focused on several distinct topics, including the Late Bronze Age Avia settlement in Saaremaa Island, and the Late Iron Age elite inhabitation site in the mainland Viljandi followed by the transition to the Middle Ages. Medieval assemblages have been analysed in numbers, considering both mammal, bird and fish remains. The results have contributed, for example, to the pattern of long distance fish trade, everyday life of the order castles, as well as revealed small matters of daily animal husbandry. Research on ancient mitochondrial DNA has elucidated the development of sheep husbandry from the Late Bronze Age onwards, while as a closer look on animal tooth and bone permits have given new information on the perception and rituality the past people had in relation to the natural world. Short overview of this vast span of themes will be given in the presentation, with an objective to open up possible collaboration and discussion on zooarchaeological research in the Baltic.

TH4-09 Abstract 13
The use of aquatic resources by Early Mesolithic foragers in southern Scandinavia

Author - Boethius, Adam, Lund University, Lund, Sweden (Presenting author)
Keywords: Early Mesolithic, Fish, Foraging subsistence
Presentation Preference - Oral

A long tradition in the research of prehistoric southern Scandinavia recognizes a full use of aquatic resources in the Late Mesolithic Eneolithic culture (5500-4000 BC): coastal sites are frequently found containing well-preserved fish bones, and isotope values from human collagen indicate a high dietary intake of marine resources. However, recent finds and new methodologies suggest that the view of a terrestrial focused diet in the Early Mesolithic period (9500-8800 BC) can be reinterpreted and the use of freshwater resources is found to be more important than previously known. Aquatic resources can therefore be seen as a major source of sustenance for foraging societies in Scandinavia much earlier than has been realized previously. In Norje Sunnmmand, an Early Mesolithic site located in Blekinge, south-eastern Sweden, large amounts of fish bones were found that have been used to estimate the amount of fish being caught at the site, by analyzing different rates of taphonomic loss. The results from the excavated part of the settlement suggest that at least 60 tons of fish were caught. The large amount of caught fish and the evidence of the means of preparing and storing them form the earliest example of a large scale fishing society, and the knowledge required to catch and prepare this volume of fish has further implications on a more structural societal level. A structured society is a prerequisite for the development of sedentism and enables large groups of people to gather together over an extended time period. Conservative dietary estimations from the recovered fish bone material suggest that enough fish were caught to sustain 100 adults, living solely on fish, for over 4 years.

TH4-09 Abstract 14
Zooarchaeological Data and the Historical Sources of Livestock and Breeding at Kurtuvėnai Manor

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Keywords: livestock, manor, zooarchaeology
Presentation Preference - Oral

Kurtuvėnai Manor – one of the first fifteenth century’s Manors established in Lithuania, which has been region’s economic and cultural center more than 450 years. In order to understand the livestock, breeding goals and practices at this manor at the time, this research combines an examination of relevant documentary of XV – XX centuries (inventory books of Kurtuvėnai Manor and information from letters) evidence with a careful osteological analysis of 3027 bones and their fragments (XV – XIX centuries), gained in archaeological excavations.

Although the size of animal farm varied during different periods nevertheless similar trends are observed. According to the observed data, it can be noticed that the smallest farm existed in the seventeenth century (this tendency was influenced by wars, famine and plague). Animal husbandry of Kurtuvėnai Manor was one of the strongest in Samogitia during the management period of the richest Samogitia’s nobleman’s (XVI century – Skadielis, XVII century – Nagurskis, XIX century – Pliateriai). This can
be explained by the economic power of the owners’ estate. During XV – XX centuries livestock was the main source of meat in comparison with wild animals or birds. This data indicates the importance of meat (pork, beef, poultry, fish) and production of milk. The breed, type, 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 material and data of inventory books confirm that here lived the rich noblemen who ate a high-quality meal. This was affected by the material well-being of strong noblemen and their dependence on the nobility of the Samogitian affluence circle. For example, in 1563 Stanišlav Skaldevskis sent 80 partidges for Prussian Duke Albrecht, three years later he sent 100 partidges. We also know that the householders of manors of the seventeenth century already took care of animal husbandry, productivity and improvement of the species. It is believed that at the beginning of the seventeenth century the Dutch cattle came to the major manors in Northern Lithuania, most likely through Riga. Pedigree cattle and horses, which were fed and conditioned better than others, were grown only on larger manors. But this innovation spread slowly. Recently, we have integrated our investigations of the excavated bones with technical and analytical development to gain an all-round perspective on social zooarchaeology. As the past researchers, we have to try to realize the full potential of zooarchaeological data and different methods of zooarchaeology.

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 sinking 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: Gomlik, 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 its stormtides, 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 relevant since their context or information were found outside the wreck.

All bones were, if possible, identified with taxa, skeletal element and side, showing a dominant amount of cattle, some pig and sheep/goat bones and a small amount game and birds. The only probably not food-related bones are 5 cat bones.

A special emphasis was placed on the butchery practice. Following the idea from David Orton (http://alexandriaarchive.org/ bonemargins/items/show/16856) GIS shape files for all bigger post cranal bones where created in a higher resolution and from different sides. As an attempt to reconstruct meat cuts all the bones where recorded with a portion based system which can be displayed on the GIS files according to their frequency. Beside from obligatory measurements after Von den Driesch (1976) 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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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 biological and sympatric, closely related seal species may help understand the reasons for extinction. In this study we analysed population genetic changes in Baltic harp seals and three extant Baltic seal species: ringed seals Pusa hispida, grey seals Halichoerus grypus, and harbour seals Phoca vitulina, during the Holocene. Each extant species showed a decline in the number of mtDNA haplotypes and haplotype diversity between historical samples (from 1843-1970) and modern samples (collected after 1975).
reflecting a demographic bottleneck in 1970-1980s. Subfossil samples (9,500-2,800 yBP) had higher haplotype diversity than historical samples of each extant species, suggesting that seal populations have been losing genetic variability throughout the Holocene, and not only as a result of recent population declines. An effective population size estimated from nucleotide diversity of subfossil samples was lowest for harbour seals and highest for ringed seals, which corresponds well with the inference based on the relative frequency of these species in archaeological sites at the Baltic coast. The effective population size of harp seals was comparable to ringed seals and higher than grey and harbour seals, suggesting that frequent occurrence of harp seals in archaeological record reflects their abundance rather than being a result of preferential hunting for harp seals. Reconstruction of the harp seal population dynamics suggests that their extinction was preceded by an abrupt rather than gradual decline. If the decline was due to an intensified hunting pressure, this would have likely affected all the seal species, and we found no evidence for this. Therefore, it is unlikely that the extinction of Baltic harp seals resulted solely from the hunting pressure.

TH4-09 Abstract 20

Worked bone and antler use-wear technology at Lielais Ludzas lake settlement complex

Author - Dancīte, Guna, Cēsis, Latvia (Presenting author)
Keywords: bone, antler, Lielais Ludzas lake, methods
Presentation Preference - Poster

Since 1950ies in Latvia is known a Stone Age settlement complex around Lielais Ludzas Lake in Eastern part of Latvia. The coastline of the Lielais Ludzas lake has not been changed or reconstructed since 1954, when the water level was regulated and it lead to finding a lot of tools made of bone, antler and stone in different shapes and sizes. The discovered uncountable number of tools interested the locals so they started to gather them for private collections.

In the following years a number of archaeological excavations were organized in several settlements. The archaeological excavations in Kreiči, Budjanka, Jurizdika I and II, Kreiči burial-ground were led by Rauls Šnore, Francis Zagorskis, Lūcija Vankina, who confirmed that the territory around the lake was inhabited during the Middle Stone Age. But after few years of surveying archaeological R. Šnore found more story find concentration sites all around the lake that could also have been a settlements - Ballīni point, Bazničukanga island, Harpuņu island, Jurizdika I, II, Kalvi, Kubolūba, Lomuža, Ludza town, Sēleļi (I, II), Šeļupīni, Ulste un Vīli (Dīri). Material use-wear was important all Stone Age but only used material depends of climate and accessible animal species. Environment combined with material use-wear technology was an important part of Stone Age people lifestyle so it is important to see correlation between worked bone and antler tools from excavated sites and stray find concentration places, also to clear out what kind of methods were used to make hunting and fishing tools in Stone Age settlement complex all around Lielais Ludzas lake in Latvia.

Mostly all tools were polished by stones, sawed on top or at the bottom of tool, part of fishing gear is bored for fishing hook holes and 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.Paavere). Although not all tools were analysed, the dominance of the previously mentioned animals matches with the Latvian paleontological 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 analysed, the dominance of the previously mentioned animals matches with the Latvian paleozoological material. It is obvious that antler tools were made from antlers of different species. 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.

Presentation Preference - Regular session

From the rock carvings depicting ships in the Scandinavian Bronze Age to the age of the Hanseatic League and its mighty cargo ships, the Baltic Sea has always played an important role as a travel zone, facilitating interregional contacts and dissemination of cultural and technological knowledge. The study of technological practices is indicative of the spread of innovation and the movement of craftsmen, and therefore not only shows the movement of goods but also the transfer of new ideas and the dissemination of people. Prehistoric and medieval production of metals in the Baltic Sea region demonstrates both shared practices and discrete traditions, making it central for our understanding of cultural relations and networks within this area.

This session aims to bring together archaeologists and archeometallurgists exploring the traditions, continuity, and developments of metal crafts through external influences and innovation from the Bronze Age to the medieval period around the Baltic Sea. The focus will be on the history of technology and traditions of metal production, including aspects of metal working techniques, utilization of tools, and the layout and “chaine operatoire” of workshops. The interdisciplinary nature of the session will encourage discussions between cultural-historical approaches, experimental and archaeometric studies, to enrich our understanding of technological practices and to explore how metals, technologies and traditions were spread and shared within the region.

TH4-10 Abstract 01

Traces on Material Culture: Craftspeople and Contact Networks in the Nordic Bronze Age

Author - Dr. Negraud, Heide, Moesgaard Museum, Aarhus, Denmark (Presenting author)
Keywords: individual craftspeople, Nordic Bronze Age, workshops
Presentation Preference - Oral

Superficial and metallographic traces of the crafting process of elaborated bronze artefacts of NBA II and III in North Germany and South Scandinavia made it possible to detect the craftsperson behind the objects. Different craftspersons and their area of influence could be identified, from a craftsperson-sor'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/potter back into the light of research.

TH4-10 Abstract 02

Technology exchange and iron trade around the Baltic Sea

Author - Joutsjärvi, Ane, Helsinki, Finland (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 artefacts. Compared to similar analyses from other areas bordering the Baltic Sea, it can be seen, that in Pre-Roman and Roman Iron Age, there are differences in technologies, that is known closely limited spread of traditions and knowledge.

In this period, the use of steel for cutting edges in tools and weapons developed in the areas south of The Baltic Sea whereas neither welded steel edges nor carburisation were introduced in ten annihilation of Denmark. One illustrative example is a number of single edge swords found in the votive deposit at Vismose on Funen. Most of the swords were made from combination of layers of iron and steel. On the basis of analyses of slag inclusions they were judged to have their most likely origin in the area of present day Poland. The sword on the other hand was made from low carbon iron, and the slag inclusions indicated that it was produced within present day Denmark. Apparently the form was copied with no knowledge of the technology.

A much more developed network seems to have been present in the Viking Age, when similar technologies for example forging knifes seem to have existed in the whole area around the Baltic Sea. It shows that there has been contact between craftsmen throughout the area, and that technological traditions have been exchanged.

Iron, and especially higher quality metal as steel, was probably also traded within the area, and slag inclusion analysis shows that steel in Denmark was primarily acquired from abroad. Unfortunately, reference databases are not yet sufficiently developed, especially for the eastern areas, and it therefore is not possible to give a more precise description of the trade routes. Future cooperation on the exchange of analyses of slag from iron smelting, will be able to open new perspectives in the identification of the trade of metal in the past.

TH4-10 Abstract 03
Vendel period seaxes from Grobin
Author - Abolins, Artis, Riga, Latvia (Presenting author)
Keywords: Baltic Sea region, Metal Working, Vendel period
Presentation Preference - Oral
There has been little written about the Scandanavian 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 Scandanavian colony in Seeburg (modern days Grobin) in Latvia. Since it is the only known find of a sword from this Vendel period colony outside their primary territory, it holds the special interest for researchers, but, so far, no special attention has been devoted to the 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 bladeamrth art of the period, consisting of mix of mono-steel and pattern-welded elements. This seax and the technologies involved in the production of it and similar weapons will be the focus of the paper. Examining the other items connected with the burial that contained this seax, it is clear that it would once have belonged to a person of importance in his society, so it not only serves as a testimony of the skill of the maker, but also provides us with additional information on the people of this fascinating time period (burial is dated to the late Vendel period (most likely, 8th century).

TH4-10 Abstract 04
Bronze Age fine metal working in Nordic Europe - gold discs and vessels
Author - Dr. Hab. Armbruster, Barbara, Laboratoire d’archéologie TRACES - UMR 5608, Toulouse, France (Presenting author)
Keywords: Fine metal working, Nordic Bronze Age, sun discs and vessels
Presentation Preference - Oral
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 ethestic appearance and social function as well as symbolic meaning of a particular group of luxury items from Scandinaavia and Northern Germany, such as ornamental “sun” discs and containers made in gold. It focusses 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 smiths’ 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.

TH4-10 Abstract 05
Some aspects of the local weapon production in Western Latvia from 9th to 13th Century
Author - Dr. Tomsons, Anturs, Latvian National History museum, Riga, Latvia (Presenting author)
Keywords: Early Medieval, Eastern Baltic, Weapon production
Presentation Preference - Oral
The question of local weapon production in the lands of the western Balts during the end of prehistory and with the beginning 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 weapons finds, especially more than hundred evidences of the double edged swords, pattern welded spearheads are significant source about warrior elites with similar identities across the whole region. These finds also reflect developed craftsmanship and several possible production centers of these weapons in Couronian lands, using both imported material sources, as well as using the skills of local craftsmen working with non-ferrous metals.

TH4-10 Abstract 06
New archaeometallurgical investigations on Bronze Age metal objects from the Eastern Baltic region
Author - Dubocage, Elka, Osth-Engelhorn-Zentrum Archäometrie gGmbH, Mannheim, Germany (Presenting author)
Co-authors - Ėčivilis, Agė, 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 investigated objects 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, Kainairiðið district (Russia) and Baturas. Most of them are single finds and one newly discovered hoard find from the Late Bronze Age: Kobjelbude.

We present the latest results of the performed analyses. Two analytical methods were applied on approx. 40 samples from metal objects (copper bronze aloy). 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 about 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.

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 - Maliszewski, Marta, 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 (10-11th centuries AD) belonging to the collections of the National Museum in Krakow and the National Museums Berlin have been studied using micro-X-ray fluorescence spectrometry and the data have been contrasted with archaeological information. The research has focused on evaluating the use of this technique as a screening tool for elemental surface characterization of the alloys. All denarii are made of Ag and Cu, with minor amounts of Pb, Fe, Au, Bi, and Zn. Quantitative analyses have revealed silver contents in the 86-97 % range for several of the surveyed coins. Regardless of the problems associated with the use of different
Instruments and various experimental conditions, the results are in agreement with previous data obtained for similar coins from the same time period and geographical location. The advantages and limitations of the technique when examining numismatic collections are also explained. A known drawback of this method is silver surface enrichment, which is a common process observed in archaeological silver-copper alloys sometimes leading to incorrect interpretation of the data. Preliminary data from complementary techniques like neutron activation analysis (NAA) and proton-induced X-ray emission (PIXE) are very promising in studying some of these surface effects.

This study has the goal of providing elemental information, which will serve to enhance the current knowledge about geographical and chronological diversification of Polish numismatic collections.
The bioarchaeological record of the Baltic Sea region contains rich and diverse assemblages of human remains that reflect a considerable depth of time; they include subordinated skeletal remains, bog bodies, arctic mummies, and much more. The purpose of this session is to highlight current bioarchaeological research in the Baltic Sea region, as such research continues to enhance our understanding of this part of Europe within the broader context of human history. We welcome papers on any aspect of research on human remains from this geographic area, from any time period. Studies involving paleodemography, paleopathology, paleoepidemiology, paleohistology, paleoimagining, human osteology, or biochemical analysis of isotopes, DNA, or trace elements are all welcome, although interdisciplinary research or studies employing multiple research methods are particularly encouraged. In the symposium we also aim to increase communication among researchers within and outside the region, and to promote shared use of collections and facilities, as well as promoting cross-disciplinary and international collaborations for future research.

TH4-11 Abstract 01

Dental findings from the Mesolithic sites in Lithuania: morphology and affinities

Author - PhD Zubova, Alisa, Institute of archaeology and ethnography SB RJAS, Novosibirsk, Russian Federation (Presenting author)
Co-author(s) - Daubaras, Mantas, Lithuanian Institute of history, Vilnius, Lithuania

Presentation Preference - Oral

Domains and Spiginas archaeological sites are located in the Lake Birzulis region, West Lithuania. Calibrated 14C data for the Mesolithic graves from Domains are around the second part of the VII millennium BC – the middle of the V millennium BC. Spiginas Mesolithic graves belonged to the period from the second quarter of the VII millennium BC to the middle of the IV millennium BC (Česnys, Balčiūnienė, 2009 table 1). According to the results of previous investigations, the complex of non-metric traits in the sample from Donkalnis and Spiginas was connected with so called «Middle European» dental type [Balčiūnienė, Česnys, Jankauskas, 1992, Balčiūnienė, 1985, Butrimas, 2012]. The main features of this type are the absence of eastern traits such as, for example, shoveling of upper central incisors and distal trigonid crest on lower first molars, and at the same time absolute prevalence of five-cusped lower first molars and high frequency of Carabelli trait on the upper first molars. Middle European complex widely spread in the Middle, East and West Europe. It has a lot of variants inside; some of them are signally distinct from each other. So we need a more precise definition of the dental status of these findings and it is one of the aims of our research. The second one is the comparison of the Lithuanian samples with the Mesolithic findings from the other regions of North, East and Middle Europe for determination of the main directions of biological affinities.

The dentitions of six Mesolithic cranioms were observed using ADSUS, Russian dental system, called after A.A. Zubov and the program of the archeic 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 (Zvenīki), Russia (Yuzhni Oleń Ostrów), Sweden (Skotsland) and Mesolithic and Neolithic series from Ukraine (Vasylleka, Voronyi-1, Voronyi-2, Nikolko, Vasnovskaya) because some of the Neolithic burials of this region were synchronous to the Baltic Mesolithic.

The results of our analysis showed the population from Domains 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 Yuzhnyi Oleni Ostrov, less in Latvia and minimally in Lithuania. So we can suggest that its presence depends on the distance from the Neolithic Baltic Sea. Lithuanian findings lack almost all eastern non-metric markers, except the six cu, but proportions of molar crowns they have close to contemporary Saami, Latgalls and some mongoloid groups. This differ them from all of the Ukrainian samples which belonged to clear middle European dental type, without any eastern admixtures.

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)
Co-author(s) - Pesch, Alexandra, Zentrum für Baltische und Skandinavische Archäologie, Schleswig, Germany

Finance: fine metal working, gold collar, Migration period

Presentation Preference - Oral

The Swedish gold collars from the Migration period are enigmatic masterpieces of Early Medieval fine metal working. Their refined imagery, complex form and decoration, and sophisticated manufacturing techniques were studied within the scope of an international research project coordinated by Pesch, Alexandra (Schleswig). This paper deals with the technological aspects of these fine items 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 garniture work. Especially interesting are the technological features of the construction of the tubular sheet work and the making of the so called miniatures. The specialized and complex knowledge of the makers will be set in the context of fine metal working in the North during the Early Medieval period.

TH4-10 Abstract 14

Iron smelting processes in the Žardo-Banduži region (Lithuania)

Author - Masiliūnienė, Ieva, Kaipialpia University Institute of Baltic Region History and Archaeology, Kaunas, Lithuania (Presenting author)
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Keywords: chemical analysis, Iron Age, iron smelting

Presentation Preference - Oral

Several years were investigated the Bandužiai (Žardo) and Bandužiai settlements and discovering archaeological structures: hearths, firepits, ore excavation pits, ore burning fireplaces, charcoal production pits, iron smelting furnaces and wells. The purpose of some of the pits and structures has so far not been determined.

The chronology of the Bandužiai (Žardo) and Bandužiai settlements is very broad, economic activities connected to iron smelting and other not defined domestic activities were conducted in this territory from 1st millennium BC - early 2nd millennium AD. Chemical analyses (XRF, SEM-WDX) of iron metallurgy artifacts and detailed analysis of archaeological material provide the opportunity to reconstruct process of iron smelting and to evaluate the development of archaeological complex in prehistory.

To begin with, a recent 'object autopsy' on the famous Gnezdovo hoard revealed that two circular brooches should be regarded as locally made reconstructions of an elder brooch type, once imported from Scandinavia. In fact, no corresponding brooches from mainland Scandinavia display similar amounts of antiquarian sentiment. Why was then so much effort put into restoring the Gnezdovo brooches? One intriguing possibility is that these brooches represented heirlooms from an earlier generation of settlers. Presumably, over time some of these heirlooms transformed into important symbols of Scandinavian ethnicity.

In contrast to the grandiosely brooches from Yelets. Here, we find an emblem, possibly linking the object to the princely House of Rurik. Rurikid emblems were compositions of elements from various sources. We believe that different male princes created individualized emblems of their own. In the case of Yelets, the emblem combines Scandinavian and Oriental elements. Yet, being a female dress adornment, we might ask whether the Yelets emblem represents the might of the princely dynasty or the power of an individual female known from written sources. There is plenty of circumstantial evidence to conclude that Yelets brooch was made for a woman with close ties to the Rurikids, possibly during the second half of the 900s or the early 1000s. Ancient concepts of personhood were such that the actions of an upper class female fell back on her entire clan. Thus, we should perceive the mere act of commissioning that sumptuous brooch as a statement of might and power. Special consideration should also be given to the role of women in the building of alliances, as well as the function of female heirlooms within the social interplay. In fact, the Yelets brooch displays signs of wear and repair that might indicate that it had been passed down to later generations. As Viking Age craftspeople 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 02

Prevalence of pathological lesions in the Iron Age water burial site Levānu, Western Finland

Author: Sato, Kati, University of Helsinki, Helsinki, Finland (Presenting author)
Co-author(s): Jakkola, Tiina, University of Durham, Durham, United Kingdom

The evidence for VS from 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.

TH4-11 Abstract 04

Cribra orbitalia and trace elements in subadults from a 17th-18th century cemetery in Latvia

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Keywords: Bioarchaeology, Paleopathology, Trace elements

Presentation Preference: Oral

Cribra orbitalia, or porotic hyperostosis of the orbital roof, is one of the most common pathological conditions found in archaeological skeletal remains of subadult humans. Reaching frequencies higher than 50% in many prehistoric samples, CO has been generally connected to a variety of factors including infectious disease and malnutrition. In this study, we tested the relationship between CO and trace element concentrations in 28 subadult skeletons from a 17th to 18th century cemetery in the historic town of Jēkabpils, Latvia. Bioarchaeological evidence indicated high mortality for children in this cemetery: half of the burials were children under the age of 14, while a third were under the age of four. Life expectancy at birth was estimated to have been only 21.8 years. Seven of the 28 subadults (25%) showed evidence of CO, but only those in age groups of 1-5 and 5-11 years old. Trace element concentrations measured by Inductively Coupled Plasma-Mass Spectrometry (ICP-MS) showed no relationship between presence or absence of CO and levels of manganese, zinc, strontium, barium, copper, cadmium, or lead (p>0.05, one-tailed t-test, unequal variances). However, a significant relationship (p=0.05) was found between the presence of CO and decreased levels of iron. Further, the relationship between CO and decreases in copper and lead approached significance (p = 0.056). These results support the hypothesis that CO is related to iron deficiency, and suggests that deficiencies in other trace elements (e.g., copper) may be involved as well.

TH4-11 Abstract 05

Finns in the light of ancient mitochondrial DNA

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Keywords: Ancient DNA, Finnish population history, mitochondrial DNA

Presentation Preference: Oral

The historical migrations and relations of mankind are currently under an intense investigation through novel means in archaeological sciences. Studies illuminating the specifics of our past use wide range of interdisciplinary methods, such as isotopic analysis and ancient DNA (aDNA). aDNA has proved a powerful tool in analysing genetic and statistical changes in populations, with an unprecedented precision. Mitochondrial DNA (mtDNA) allows the maternal lineages to be followed back in time. Comparing the distributions and divergence of mitochondrial haplogroups helps revealing past migrations and shifts in the genetic structure.
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. Therefore, we report here an ancient DNA approach together with statistic computational methods, to study skeletal remains from Finnish historical burial grounds. Our objectives are to resolve the historical relations of Finns with the neighboring populations, such as other Finno-Ugrians, and investigating the migration patterns over time. We also hope to address the local emergence of haplogroups associated with farmers in Europe, and the effect of this on the more archaic “hunter-gatherer” haplogroups 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 paleopathological 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 archeological collections studied were retrieved. The mitochondrial DNA evidence is used, through continuity tests, to compare the ancient DNA profile set of Finns with that of the modern Finns. In addition, by including modern nearby populations into analysis, it is possible to examine the past relations and possible patterns of migrations in historical Finland. Previously published aDNA data from other locations is used to estimate the order and timing of population changes in Finland over time.

In the future we hope to include more ancient samples from Northeastern Europe and other parts of Finland, dating to the Iron Age, to further complete the historical timeline. Genome-wide nuclear DNA analysis is also planned for the samples well preserved.

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**TH4-11 Abstract 06**

A genetic perspective on population dynamics of the pre-historic Eastern Baltic region

**Author:** Miettinen, Aki, Max Planck Institute for the Science of Human History, Jena, Germany (Presenting author)

**Co-author(s):** Schifflers, Stephan, Max Planck Institute for the Science of Human History, Jena, Germany

**DNA analysis of the individuals buried in the Salme boat graves**

**Author:** Prof. Allen, Marie, Uppsala University, Uppsala, Sweden (Presenting author)

**Co-author(s):** Bus, Magdalena, Uppsala University, Uppsala, Sweden

**Keywords:** DNA analysis, Human remains, Next Generation Sequencing

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**TH4-11 Abstract 07**

Two boat-groves, Salme I and Salme II, were found and excavated in 2008-2011 in Saaremaa, Estonia. They are unique in the European context regarding the remarkable number of human burials inside the boats. Osteological and archaeological examinations have given indications of sex, age, and social status during the time. However, with recent developments, modern DNA technology can enable a comprehensive genetic analysis. Today we can get information about ancestry, origin, gluten and/or lactose intolerance, family relationships and sex. It is also possible to predict physical appearance with regards to hair, eye and skin color, length, wet/dry earwax, body odor and BMI.

The introduction of next generation sequencing (NGS) has opened up a whole new field allowing numerous analyses that would not otherwise have been possible. We will use NGS technology and massive parallel sequencing for a detailed genetic analysis of the Salme materials along with current archeological methods to generate a database with DNA profiles and information about individuals from the boat graves. Ancient skeleton 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 diversity and genetic analysis. The assay provides the tool to generate genome-wide DNA profiles of Viking age remains to ancient and contemporary European populations for information about ancestry and the migrations in ancient times. Our data may also provide information about phenotypic traits of these seafarers from early Viking ages.

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**TH4-11 Abstract 08**

Bringing them to life - A multidisciplinary study of Eura Luistari cemetery (6th-12th c AD), Finland

**Author:** - Elina Huttunen, Helsinki, LUMOUS & University of Turku, Helsinki, Finland (Presenting author)

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**Keywords:** - Kivutkalns bronze-working centre

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**TH4-11 Abstract 09**

Kivukalns bronze-working centre in light of archaeology and natural sciences

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**Co-author(s):** - Kantanen, Juha, University of Eastern Finland, Kuopio, Finland

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**Keywords:** DNA studies focusing on Finnish population history before now. Therefore, we report here an ancient DNA approach together with statistic computational methods, to study skeletal remains from Finnish historical burial grounds. Our objectives are to resolve the historical relations of Finns with the neighboring populations, such as other Finno-Ugrians, and investigating the migration patterns over time. We also hope to address the local emergence of haplogroups associated with farmers in Europe, and the effect of this on the more archaic “hunter-gatherer” haplogroups 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 paleopathological 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 archeological collections studied were retrieved. The mitochondrial DNA evidence is used, through continuity tests, to compare the ancient DNA profile set 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.
Kivuktalns complex of cemetery and hillfort has been considered as the largest Late Bronze Age bronze-working centre in Latvia. One third of the archaeological artefacts found at Kivuktalns hill-fort in the lower Daugava river are related to bronze working (Vaaks 2010). According to archaeological excavations the hill-fort was built on top of a cemetery, from which burials of more than 230 individuals have been found. Recently, a set of radiocarbon dates on both the hillfort and cemetery provided new information on the relative dating of these and even challenged the old interpretation (Ononen et al 2013).

In 2014 Finnish Cultural Foundation provided support for a new project to study chronology of the site, and cultural and genetic connections between Kivuktalns site and eastern Fennoscandia. In this contribution, we present the status of this project. First, we discuss the cultural connections based on archaeological investigations of the artefacts from Bronze Age cultures of north and south of Gulf of Finland. Second, we present new 14C-based chronological of the site to shed light on both absolute and relative dating of hillfort and cemetery. Third, we present new data on dietary habits and discuss genetic affiliation of the people based on 13C, 15N isotopic data and ancient DNA measurements on human bones, respectively. Particularly, possible genetic connections between Kivuktalns and ancient and present populations of eastern Fennoscandia are discussed.


TH4-11 Abstract 10

Human bone AMS 14C dating and the freshwater reservoir effect?

An East Lithuanian Iron age sample

Author - Dr. Kurila, Laurynas, Lithuanian Institute of History, Vilnius, Lithuania (Presenting author)

Keywords: East Lithuania, Freshwater reservoir effect, Radiocarbon dating

Presentation Preference - Oral

The chronology of Baltic tribes’ Roman period – Viking age archaeological material has up till now been built upon typological dating of artefacts, mostly those discovered at burial sites. However, the lack of chronological reference points is becoming increasingly evident. In many cases, sequences of particular artefact assemblages are sufficiently defined, but unrelated to absolute dates. Radiocarbon dating of series of samples associated with different artefact types or other archaeological markers should contribute a great deal not only to dating particular sites, but also to testing and correcting typological shemes and thus advancing the capabilities of relative chronology.

In order to achieve the above-mentioned goals and to test the research potentials in this field, a project was carried out during which 30 human burials were AMS 14C dated. The samples (11 of unburnt bone, 17 of cremated bone, and 2 of charcoal from cremation burials) from Roman period – Viking age East Lithuanian burials were selected in order to cover all chronological horizons (c. 5th–11/12 centuries AD) and to obtain radiocarbon dates associated with as much artefact types as possible. Special attention was also paid to the construction of the burial, i.e. in selecting the samples, every effort was made to represent a maximum variety of construction features, which are usually considered to be chronological indicators. Calibrated radiocarbon dates were statistically compared with the ones determined on the basis of the grave goods employing all currently available typology schemes.

The radiocarbon dates appeared to be unexpectedly old compared to the typological ones, this can be hardly explained by the unreliability of the dates alone. In only 18 instances did the intervals of absolute and relative dating overlap. The collected data, however, offer an opportunity to set a new goal for the study, i.e. to search for the sources of the date offsets, and the possibilities of eliminating them. Overly old radiocarbon dates in similar contexts are generally associated with the freshwater reservoir effect. The results of radiocarbon dating demonstrate that this effect should be considered and needs special regard. In order to evaluate the possible significance of this effect’s impact, to determine the reservoir age, and to verify the possibility of eliminating this effect, additional investigations need to be conducted. At this stage of research, additional radiocarbon dates of related contexts are necessary. Another important research direction should be determination of the quantity of food of aquatic origin in contemporary human diet. For the material of the above-mentioned period and region, radiocarbon dating alongside with stable isotopes (δ13C and δ15N) analysis of human and horse burials seem to be the most relevant methodological approach in order to assess the differences between radiocarbon ages of those stratigraphically related bone samples which are affected by the freshwater reservoir effect and those which are not. It would likely allow the modelling of the true age of human bone samples – both those dated during the project and those which will be dated in the future.

TH4-11 Abstract 11

Pattern and diversity in the Late Mesolithic – Early Bronze Age mortuary practices of Eastern Baltic

Author - PhD student Čabrauskas, Mantas, Lithuanian Institute of History, Vilnius, Lithuania (Presenting author)

Keywords: Eastern Baltic, Archaeoanatomathology, Mesolithic, Neolithic, Bronze Age, mortuary practice, burial practice

Presentation Preference - Oral

Recent studies (archaeoanatomology and new C14 AMS dates namely) of the Late Mesolithic – Early Bronze Age (7000 – 1000 cal BC) mortuary practices of Eastern Baltic area allows us to give a first synthesis of the evidence for a diverse range of burial practices across the time and space as well as a possible interpretation of what they suggest about understandings of the body, relatedness, personhood and ancestry in the Late Mesolithic – Early Bronze Age Eastern Baltic area. By exploring the ways that mortuary practices were intertwined with the development of the places where they were carried out we can build up a more detailed and varied picture of the principles underlying the Late Mesolithic – Early Bronze Age mortuary practices. Some practices suggest an interest in the ancestral remains of the dead, while others suggest different phenomena, yet a general picture of how human bodies were treated after the death emerges. It is argued here that the burial customs of 7000 – 1000 cal BC Eastern Baltic area were far more diverse and dynamic than usually thought, with an exceptional turmoil at the time of emergence of farming.

TH4-11 Abstract 12

Commingled remains of Late Bronze Age stone-cist graves at Joelätme in Northern Estonia

Author - Värd, Liiu, University of Tartu, Tartu, Estonia (Presenting author)

Keywords: Burial, Late Bronze Age, Osteology

Presentation Preference - Oral

The Late Bronze Age (around 1200–500 BC) in Estonia is characterized by the emergence of stone-cist graves. The above ground round structures with central cist(s) and one or more exterior circular walls were mainly erected in the coastal area of Estonia. Graves are usually located in small groups of 3–5 and even though they appear to be meant for a single burial, usually remains of multiple individuals are found within them.

The grave field of Joelätme in Northern Estonia consisted of 36 stone-cist graves which have been fully excavated. The connected and heavily fragmented remains were recovered. Human bone and articulated skeletons were recovered. I have approached the bone material using osteological methods together with contextual analysis to answer questions such as who were the people buried in the stone-cist graves and what can be said about the burial customs or practices.

TH4-11 Abstract 13

Infants, “Mylings” and “The wee folk”

Author - MA Malmberg, Gustav, Uppsala University, Visby, Sweden (Presenting author)

Keywords: Infant funeral, Infant mortality, Medieval Gotland

Presentation Preference - Oral

In Scandinavian folklore, “mylings” were the souls of unbaptized or murdered children. This article discusses the Medieval attitude to infants and infant funerals, based on the discovery of infant skeleton in a cesspit in one of the Medieval stone houses at Visby. The article takes up the question of the burial rights of unbaptized children, the problems incurred by lack of Medieval infant remains, Medieval infant mortality, and conceptions regarding stillborn children, illegitimate children and infants. The discussion deals with the Christian society’s attitude to and treatment of illegitimate children, and also touches on common conceptions of infants and infant funerals. The necessity of baptism for the right to a grave has been discussed, based on Medieval law and archaeological material. Ethnological material has also been studied, and links made with the enormous complexity of conceptions of the wee folk underground - a common occurrence in tales about pregnancy, childbirth and baptism. “The wee folk” live under a large stone, an old tree or a cairn. In some Bronze Age graves in a交流合作 contained infants - those in the cairn at Hau, on northern Gotland, have been 14C-dated to 1 to 2 High Medieval Period.

TH4-11 Abstract 14

Human remains from the Medieval and Early Modern Gallowis hill in Tallinn, Estonia

Author - PhD student Maiev, Martin, University of Tartu, Tartu, Estonia (Presenting author)

Co-author(s) - Wärmänder, Sebastian K. T. S., Stockholm University, Stockholm, Sweden
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: P. Pungoja, Saast, Institute for Archaeological Sciences Tübingen, Tübingen, Germany (Presenting author)
Co-author(s): - Mittk, Alissa, Max Planck Institute for the Science of Human History, Jena, Germany
Co-author(s): - Almat, Rall, School of Humanities, Tallinn University, Tallinn, Estonia
Co-author(s): - Krause, Johannes, Max Planck Institute for the Science of Human History, Jena, Germany

The Neolithic Revolution, describing the transition from a hunter-gatherer subsistence to farming, is one of the most important processes in human history and has been found to be largely a result of demographic diffusion. The arrival of the first farmers in Europe led to an influx of genetic diversity not seen there before as well as admixture of local hunter-gatherer and immigrating people. 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 that many of the individuals aboard the ship were Scandinavian, a number of individuals exhibit cranial and dental characteristics inconsistent with European ancestry. These findings provide new information about the demographics of the Swedish military community during the seventeenth century. In addition, the study demonstrates the limitations of current craniometric databases for distinguishing different populations around the Baltic Sea, a situation that will hopefully improve as reference data for these populations becomes available in the future.

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: S. Savulya, Sandia, Bournemouth, United Kingdom (Presenting author)
Co-author(s): - Smith, Martin, Bournemouth, United Kingdom

During an excavation in Vilnius in 2001 a mass grave was uncovered containing over 3000 individuals, later identified as Napoleon’s soldiers from his unsuccessful 1812 campaign against the Russian Empire. In 2007 the burial ground of the former Royal Naval Hospital was excavated in Plymouth, UK. The graves that were excavated contained more than 150 British sailors dating from broadly the same period as the Vilnius mass grave. These two excavations therefore provide an excellent opportunity to compare broadly contemporaneous groups of servicemen that are very similar and at the same time very different.

The current project focuses particularly on spinal pathology and the respective effects that different kinds of manual labour might have had on individuals from the two groups studied. Whilst both groups are likely to have had rigorous demands placed on them by their respective occupations, the current study considers the extent to which varying kinds of habitual activities will have produced different patterns of alteration and pathological responses in this crucial part of the skeleton.
WESTERN BALTS IN THE IRON AGE

Thursday, 1 September 2016, 09:00-13:00
Faculty of Philology, Room 10

Author: Dr. Jahn, Christoph, Museum für Vor- und Frühgeschichte Berlin, Berlin, Germany (Presenting author)
Co-author(s): - Skvortsov, Konstantin, Kaliningrad State Museum of History and Art, Kaliningrad, Russian Federation

Presentation Preference - Oral

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 show 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 505 burials and over 5000 grave goods. The finds from the Migration Period are indicators for long-distance trade and communication between Prussians, Curonians, and the mutual relations between colonists and Curonians. The study uses both written and archaeological sources.

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 potter's 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 potter's wheel is taken up only partly, preserving previous pottery production methods and using them alongside the new methods. The hand-made manufacturing tradition was not forgotten, in fact, hand-made pottery was still produced until the fourteenth century. This paper aims to show a different pattern of relation of the local people to the changing world around them through the acquisition of Baltic ware and the potter's wheel. The differences of taking up the new technological innovation could not have originated just from differing placement within the trade network. Both regions have equal access to the new technology. However while some take it up rapidly others seem more hesitant. The braking and remaining of thousands of years old pottery production traditions was influenced by longstanding socio-economic paradigms. Further discussion of pottery variation might reveal some important playing factors within these paradigms.

Belt hooks, fishing lures or clothing fasteners?

So-called belt hooks in the Western Baltic lands

Author: - Dr. Wadowski, Sławomir, University of Warsaw, Warszawa, Poland (Presenting author)

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 a one thing from the start the XI century. These technologies might be the result of multilateral contacts with Scandinavians 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 Kurfürstentum and the first millennium. The inlay and plating 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.

Preliminary considerations on the technological variation within Baltic ware pottery

Author: - MA Sulte, Alise, National History Museum of Latvia, Riga, Latvia (Presenting author)

Keywords: Baltic ware, Latvia, Potters' wheel

Presentation Preference – Oral

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Products Made with Inlay and Plating Techniques in the Ancient Prussia in the XI - XIV Centuries

Author: - Khokhlova, Alexei, IA RAS, Tver, Russian Federation (Presenting author)

Co-author(s): - Shiroukhov, Roman, Vilnius university, Vilnius, Lithuania

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 a one thing from the start the XI century. These technologies might be the result of multilateral contacts with Scandinavians 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 Kurfürstentum and the first millennium. The inlay and plating pottery was still produced until the fourteenth century. This paper aims to show a different pattern of relation of the local people to the changing world around them through the acquisition of Baltic ware and the potter's wheel. The differences of taking up the new technological innovation could not have originated just from differing placement within the trade network. Both regions have equal access to the new technology. However while some take it up rapidly others seem more hesitant. The braking and remaining of thousands of years old pottery production traditions was influenced by longstanding socio-economic paradigms. Further discussion of pottery variation might reveal some important playing factors within these paradigms.
of sword knots and belts, spurs for riding and buckles of spurs, arms like the sword from the Balga castle surroundings and sword hilt from Marienwerder) decorated with geometrical and zoomorphic ornament like image of horned animals ("goats of Perkūnas god") made in unusual for Prussia style with using wire and foil from different metals. Some researchers had suppositions about their eastern origin connected with the movement of the Mongols in Eastern Europe in the XIII century. Such supposition has its reason considering geography of findings (Moravia, Poland, Katyngrad 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 (Unterpleinen, Równina Dolna, Poland), Prudniki/AI Wehlau, Simonischken, Klinovica (Wilkiai, Kunterstrach), Rybachy (Stangenwald). Such artifacts are also known in Belorussia and Lithuania that can be explained by the migration of the population West-Baltic region caused by crusader expansion. Numerous décor elements connected with Christianity (different images crosses) appeared in this period. This stage is characterized by the reduction of products plated with silver that was in active usage at the first stage. Mass use of these technologies passed away among Prussian jewelers. In this period such goods served as status indicating jewelry of Prussian nobles. This jewelry tradition passed away completely perhaps under the influence of European fashion after absolute conquest of Prussian tribes by the Teutonic Order.

TH4-12 Abstract 06
Western Balts after the Vikings and just before the Crusades.
Finalisation of the post-doc project

Author - Dr. Shiroukhov, Roman, Vilnius University, Vilnius, Lithuania (Presenting author)
Keywords: Archival data, Chronology, Western balts
Presentation Preference - Oral

During the several last years of preparation of PhD thesis about Prussians and Curonians contacts in the 10/11th-13th centuries and the Post-doc project, dedicated to the Western Balts social, economical and cultural development in the described period, the unique archaeological archives and artefacts database of the 37th scientific institutions from the 8th countries has been collected. Following the tradition of the transregional research of the Western Balts, established by Carl Engel and other East Prussian archaeologists and working in all the major archaeological collections of the Baltic sea region, connected to the Western Balts culture of the late 10th-13th centuries, with a particular consideration on former "Prussia Sammlung", the picture of development of the whole South-East Baltic region on the basis of archaeological data was elaborated. Considering this, catalogues, maps and-analytics for the each general artefact type, burial custom and social (cemeteries based) structure were prepared and partially published. The very first draft of the book reviewed by 2 senior researchers was sent to the Research Council of Lithuania in March 2015. The basis of the draft represents the dissertation, significantly supplemented with data collected during the implementation of a post-doc project in 2013-2015, as well as some new ideas and theories about the development of the South-East region of the Baltic Sea in the 10-13th centuries. The final stage of the preparation of the pos-doc project book will be presented at the session.

TH4-12 Abstract 07
A Heraclius solidus - an Avar find from Sambia

Author - Dr. Zapolska, Anna, Institute of Archaeology, Warszawa, Poland (Presenting author)
Keywords: Avars, Heraclius, solidus
Presentation Preference - Oral

In 80' of 20th century a unique find was made in Sambian Peninsula. During excavations a Heraclius solidus was discovered – the only so far Byzantine coin from this region. Gold coins of Heraclius were minted in big numbers and served as source of tribute payment for Avars. The time of paying these tributes to Khaghanat was very short – it lasted only few years – as long as Avars threatened to the Empire's borders. Even though there are numerous finds of these coins in Lower and Middle Danube, in Carpathian Basin and further to the north up to Middle and Lower Rhine. One such coin was found on Polish lands. The one from Sambia is the farthestest find and isolated at the same time. The artifacts, which can be linked with Avar influence found within West Balts Culture Circle are rare. Among them there are mostly belt fittings, elements of harness and sporadically parts of jewelry. The coin then arises suspicions and questions on it's origin, time, ways and circumstances of the inflow.

In my paper I will present new ideas on this matter – contrary to common opinion, that Byzantine coins were brought to the north from the Carpathian Basin through Slaves, there were the rests of Germanic tribes, who should be linked with this mystery and unique find and it's appearance at the Baltic shire.
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 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.

During the Stone and Early Bronze Age, flint and chert were the most widely used raw materials for making various types of tools and weapons. Along with dyes (used in burial rituals) and shells, lithic raw materials are among the most important items available to archaeologists to document long distance distribution, exchange networks, and mobility in Stone Age. Given this, precise identification of the outcrops of siliceous rocks-based on their mineral and chemical composition-is of crucial importance in determining the geologic/geographic areas from which artifacts originated. Because flint is notoriously difficult to source using macroscopic means, instrumental methods of analysis, e.g., energy-dispersive x-ray fluorescence (EDXRF), laser ablation-inductively coupled plasma-mass spectrometry (LA-ICP-MS) trace element analysis, scanning electron microscope (SEM), electron probe micro analysis (EPMA) and micropaleontological analysis have all 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  INVESTIGATING GEOCHEMICAL AND Petrographic METHODS FOR FLINT IDENTIFICATION IN ARCHAEOLOGY

Friday, 2 September 2016, 09:00-13:00
Faculty of History, Room 217
Author: Sobiak-Walbała, Iwona, Institute of Archaeology and Ethnology
Polish Academy of Sciences, Poznan, Poland (Presenting author)
Co-author(s): Wierra, Dagmara H., Autonomous Unit for Prehistoric Flint Mining in Warsaw, Institute of Archaeology, Warsaw, 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 composition-is of crucial importance in determining the geologic/geographic areas from which artifacts originated. Because flint is notoriously difficult to source using macroscopic means, instrumental methods of analysis, e.g., energy-dispersive x-ray fluorescence (EDXRF), laser ablation-inductively coupled plasma-mass spectrometry (LA-ICP-MS) trace element analysis, scanning electron microscope (SEM), electron probe micro analysis (EPMA) and micropaleontological analysis have all 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-Soló, Mar, University of Barcelona, Barcelona, Spain (Presenting author)
Co-author(s): García-Angéles, Pilar, University of Barcelona, Barcelona, Spain
Co-author(s): Mangado, Xavier, University of Barcelona, Barcelona, Spain
Keywords: Archaeopetrology, Flint, Raw materials
Presentation Preference: Oral

The Epipaleolithic site of “Hort de la Boquera”, dated from 12,250±60 BP to 11,850±45 BP and 11,775±45 BP, is located in the north-eastern part of Iberia. The complete stone tool assemblage includes up to 24,000 flint artefacts. This presentation is the first approach to the analysis of the raw materials through an archaeopetrological study. First of all, results were obtained by use of mineralogical techniques: macroscopic and microscopic (petrographic) analysis, Scanning Electronic Microscopy (SEM), Micro-Raman and X-Ray Diffraction (XRD), thus combining mineralogical, petrological and micropaleontological methods. Additionally, a geochemical technique was applied: LA-ICP-MS. One of the aims of this presentation is to show the results that were obtained in this study and to demonstrate the advantages and disadvantages of each technique used. Finally we will show the initial results of the project’s geological surveys conducted in the area, which has allowed for the study of several primary outcrops of siliceous raw materials. The analysis of these sources of raw material and their comparison with the stone tools recovered in Hort de la Boquera rockshelter have lead to an initial approach to the potential sources of supply of the Epipaleolithic groups that occupied this rockshelter. Together, these results make this study the most comprehensive analysis of the raw materials to have been carried out in the area, and will therefore be a breakthrough in our knowledge of the economy of the prehistoric communities, and thereby helping in the understanding of the reasons for certain human behaviours.
TH5-01 Abstract 02
Applying ED-XRF, LA-ICP-MS and PIXE analyses to characterize Pyrenean cherts. Potentials and limits

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Keywords: chert characterization, geochemistry, lithic raw materials procurement

Presentation Preference - Oral

An intense fastwork focusing on the definition and characterization of chert sources outcropping in the Pyrenees (SW Europe) was recently done. This work was linked to a PhD research concentrated in determining Mallorcan human mobility in the Pyrenees through the analysis of chert tools. This study contemplated a textural, petrographic and micropaleoanthropological characterization of chert using macroscopic and microscopic methods. However, results showed that these techniques had some limitations regarding the existent similarity between several formations. Thus, recovering the previous data obtained after the textural, petrographic and micropaleoanthropological characterization of several Pyrenean chert formations, we applied some geo-chemical methods. The aim was to observe the potential these methods could have to characterize chert and, by this way, solving archaeological questions. We would like to present in this communication the potentials and limitations of the application of energy-dispersive X-ray fluorescence (ED-XRF), laser ablation-inductively coupled plasma-mass spectrometry (LA-ICP-MS) and particle-induced X-ray emission (PIXE) to chert characterization.


TH5-01 Abstract 03
Sourcing prehistoric chert artefacts from Malta using new non-destructive techniques

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Keywords: Chert, Malta, Sourcing

Presentation Preference - Oral

The purpose of this paper is to present petrological/geological 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 (FRAG06) investigating the extent to which these islands were laboratories of human activity and, in particular, their degree of connectivity with neighbouring areas. The project focuses on the Stone Temples on Malta (between 4th and 3rd millennia BC) and identifies the circumstances under which these unique monuments were built.

Although these stone artefacts have been studied in the past, the research on their sources has been inconclusive. The advantages of these techniques are: their great accuracy, the speed with which results are obtained and, most importantly, they are non-destructive. They are considered perfect for identifying the mineralogical and geochemical context of rock samples. These specific characteristics, combined together, can be great indicators of the origin of these chert assemblages.

Firstly, the main principles, functions, equipment and limitations of these techniques will be demonstrated. Secondly, preliminary results from both chert assemblages and chert outcrops from Maltese islands will be presented. Moreover, this paper will also show how the results should be processed in order to obtain the necessary and useful information in sourcing chert assemblages. Finally, a comparison will be made between these techniques and those used in similar research in western Greece.

TH5-01 Abstract 04
Renewed petrographical and geochemical studies of flint from secondary deposits: Belgian case study

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Keywords: Chert, Flint, Malta, Sourcing

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 biotopes ranging from boreal forest to tundra conditions, home to both Neanderthals and the large fauna that they hunted. This study is focused within the Middle Palaeolithic of the area; a time period represented well in the western Channel for example at large sites such as La Cotte de St. Brelade, Jersey. It aims to shed light on the now largely submerged Neanderthal resource base by reconstructing procurement of their preferred raw material, flint (here referring to siliceous rock of Cretaceous age). On the Continental Shelf we know that primary bedrock flint was likely only available from several small chalk outcrops to the north of Jersey and, whilst subsidiary flint sources were present in rock beaches and carried by nearby palaeoivers, these flint pebbles, removed from their original context, are very variable with thick, pitted, cortex and visible inclusions, deriving from multiple parent sites.

This research focuses on artefacts within the La Cotte de St. Brelade assemblage that have likely been procured from a primary bedrock origin. At this stage these artefacts are identified macroscopically by the presence of thin chalky cortex and the fine-grained homogenous nature of the flint matrix. This project investigates the geochemical signature of these fints objects with
the hope to further clarify this theory and provide empirical data to macroscopic generalisation. It therefore employs an artefact
centric model first testing multiple assemblages from the site using portable raman spectroscopy. This process will likely
to be repeated with different methods that can be supported by further targeted minimally destructive testing, such as LA ICP-MS to
achieve a more finite, quantitative perspective looking for geochemical trends within the sequence. Overall there are some
clear and obvious issues with sourcing flint in general (e.g. internal variation, high silica percentage) and particularly within this context
where we have no access to the suspected primary deposit. However the potential to realise information about this sustained
and varied Neanderthal occupation and share quantity of flint artefacts available to study outweighs preliminary negatives and the
future of this project will be to further adapt a methodology aimed to shed light on Neanderthal behaviour through their flint
acquisition strategies.

**TH5-01 Abstract 07**

**Erratic Flint from Poland. Preliminary results of petrographic and geochemical analyses**

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**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 contacts as well as the quality and exchange networks.

At the same time, those features which caused siliceous rocks to be highly prized by ancient communities also mean that it is necessary to carry out a deposit to concrete artefacts found at an archaeological site. That is why researchers try to describe the diagnostic features of siliceous rocks using various petrographic and geochemical methods. The area of the Vistula basin is rich in siliceous rocks and it contains deposits of several varieties of flint. A ‘chocolate’, grey white-speckled and striped (banded) variety, Volhynian flint on its eastern borders and erratic flint, occurring mostly in secondary deposits, were widely used in prehistoric times. Almost all types of them have been examined by using both macroscopic and petrographic-geochemical methods to define their diagnostic features.

Flint has never been a subject of a separate geographical study. This perhaps stems from the fact that among several varieties of flint used by prehistoric inhabitants the region of present-day Poland, erratic flint is the most challenging raw material because of its high variability in colour, the presence of fossil microorganisms and heterogeneous composition. Large differences exist in the region. In general, two main types of Cretaceous flint have been distinguished: the so-called variant A - bluish-grey nodules, and variant B - Pomeranian flint in the form of pebbles (the so-called swallow eggs), yellowish-brown or pink in colour.

The aim of the paper is to present the preliminary results of petrographic and geochemical analyses of erratic flint found throughout present-day Poland. Three different methods have been applied: electron probe micro analysis (EPMA), scanning electron microscope (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 and among samples of erratic and ‘chocolate’ flint but a much larger sample size of erratic flint specimens needs to be analysed to determine the range of chemical composition they contain.

Acknowledgements: The investigations were funded by the National Science Centre in Poland (PRELUDIUM 2; UMO-2011/03/N/H3/03973).

**TH5-01 Abstract 08**

**Lithic raw material from eastern part of Polish Carpathians. Results of preliminary research**

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**Keywords** - lithic raw material, macroscopic and petrographic characteristics

**Presentation Preference** - Oral

This presentation refers to the lithic raw material exploitations in the eastern part of Polish Carpathians. The surface surveys and LEDAR analysis carried out in 2013-2016 on this area resulted in discovery of new resources of various lithic raw material used in the prehistoric: siliceous sandstones, quartzite, siliceous marls, marne horizons, flysch radiolite, bireza-like flints, light-brown tabular hornstone. As suggested from artefacts found on the sites in Poland and Slovakia in various chronological contexts these lithics were exploited both for local and much wider use. Identification of raw material itself as well as the outcrops of siliceous rocks is crucial issue in the study on 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, flysch radiolite and flints from the Eastern Carpathians as well as their natural sources. We point at distinctive features of macroscopic similarity or almost identical raw materials that allow to discern stone artefacts and suggest their source area.

**Acknowledgements:** The investigations were funded by the National Science Centre in Poland (PRELUDIUM 2; UMO-2011/03/N/H3/03973).

**TH5-01 Abstract 09**

**Flint studies for applications in archaeology – procedures and investigation sequence**

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**Keywords** - flint and chert, research procedures, stone tools

**Presentation Preference** - Oral

During the Paleolithic flint and chert besides other stone materials were widely used for making tools. Because of numerous finds, flint becomes one of the most important information sources regarding prehistoric society for evaluation of ancient skills, knowledge and innovations. Therefore needs for well-developed typology of tools and updated laboratory methods for raw material identification and characterization can be recognized.

Mentioned above leads to evaluation and future development of tools grouping and classification still visually based to be supplemented or replaced by tools morphometric analyses and numeric data analysis depending on research directions. In this respect specialized data coming from artefacts morphometric analysis can be used also for identification and characterization of used raw material, pointing, for example, to quality of the material for making tools, processing possibilities and traces of weathering. Current laboratory testing methods are well developed and available in most of the research centers and institutes, however, only few developments are done following and then also the case studies with limited potential to be applied in traditional archaeological studies. Most of reasons are related to limitations to use destructive methods, needs for pretreatment, size of sample, specific qualifications etc., but still the main complications are coming from natural diversity of stone material and complications to obtain comparable analytical data.

In the study geological samples of flint and chert besides from sites in Northern Europe as well as archaeological samples collected during Institute of Latvian History excavations in the Stocence Neolithic settlement and Lapini Mesolithic settlement were included. The research procedure was developed for obtaining comparable analytical data. In the study macroscopic and microscopic assessments in visible and ultraviolet light were carried out, and for chemical composition detection the X-ray fluorescence spectrometry (XRF) method was used.

Our studies demonstrate needs for certain procedure and conditions to obtain analytical data which satisfy regional flint tools studies regarding source material localization and tracing the transportation routes.

**Acknowledgements:** The findings were supported by the NATO Scientific Initiative (SIP-550).

**TH5-01 Abstract 10**

**Cultural contacts during the late Boreal and early Atlantic by the Baltic coast of Sweden**

**Author** - Källquist, Mathilda, National Historical Museums, Sweden, Lund, Sweden (Presenting author)

**Presentation Preference** - Oral

What were the directions of the social and cultural routes of contact, during the late Boreal and early Atlantic in Southern Scandinavia? This study is based on geological traditions in bone and lithic material, and strontium analyses from teeth. The main material comes from Norje Sumanans, a well preserved settlement covered by Littorina gylta, excavated in 2011. The site lies by the outlet of a former lake, 2 km from the Baltic coast in Southeastern Sweden. It is among the first coastal settlements from the Maglemosian period excavated in Southern Scandinavia. The settlement has been inhabited repeatedly during most of the year, and the finds are extensive, including both a variant lithic material and bone material 14C dated to ca. 7600–6800 cal. BC. The choice of lithic raw material – mainly Kristianstad flint, Seronian flint and quartz – suggests connections in both northbound and southbound directions. Some characteristics of the lithic blade technology and the bone technology also suggest a connection with traditions from the east side of the Baltic, while bone ornaments and Szczecin triangles show some similarities with the Maglemosian tradition. The results from strontium analyses of 12 lose human teeth strengthens the picture of connections between people from different geographic areas.
The rise and development of brick production in Vilnius, the capital of the former Grand Duchy of Lithuania, was inspired as strategically important craft. The production of bricks has been changing and improving during more than seven centuries. Therefore brick is an important source providing the knowledge about the technical development, production potential and cultural influence during different periods. The evaluation of physical and chemical properties of bricks would enable us to judge about the technological standards of Vilnius bricks, deviations from them and their reasons. The promising investigation methods of the old bricks are related to applied methods of exact sciences. One of them is geochemical method. The geochemical data statistically grouped using Ward’s hierarchical clustering (Barcevičius, Taralkevicius, 2015, Archaeologia Lituanica, v.16, p.45-62) enables to hypothesis that: a) in certain chronological periods the material for construction of buildings and production of bricks could be extracted from the same or adjacent clay deposits similar in mineral composition; b) there existed brick production technologies specific for that period. So, it is possible to try to create peculiar “multivariate recalibration matrices” with as many as possible dated or characterised by other parameters samples. According to them it would be possible to determine at least approximate date of the newly found interesting brick of unknown chronology or to compare other features.

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

Aiming to obtain more precise interpretation of brick origin and technological processes using geochemical methods it would be useful: a) to take more (³3) sub-samples from the same brick (avoiding the effect of random sample selection), b) to take samples from the inner part of the brick (excluding anthropogeochronological component), c) to use multivariate analysis method with obligatory determination of total content of main major chemical elements and their specific satellites, d) to compile geochemical database of as many as possible exactly dated bricks (when a, b and c requirements are met), e) to select the set of chemical elements for multivariate analysis basing on various geochemical features (not only variability of composition), f) to verify and supplement the results of cluster analysis with the help of other multivariate statistical methods, g) to accumulate geochemical data on potential raw material (clay) deposits.

TH5-01 Abstract 12
Micromorphology of flint from Mesolithic–Early Neolithic site Zamostje 2 via thin-section analysis

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Keywords: Mesolithic, Early Neolithic, petrography of flint, raw materials, Zamostje 2 site
Presentation Preference - Poster

Site Zamostje 2 is situated in the northern part of the Moscow district on the Duna river (Russia). The site has yielded cultural layers of the late Mesolithic and early Neolithic with pottery and dated to the time between the beginning of the 7th to the middle of the 6th millennium cal BC. The flint tools which were found inside the Mesolithic–Early Neolithic cultural horizons have many common features. Mainly the same flint sources were used for them. Micromorphology of flint samples including the composition and structure of flint was examined by means of thin-section analysis. Thin sections were investigated at low magnification between x10 and x100, as higher magnifications observe individual features, which may not be helpful for structural interpretation. Using both plane- and cross-polarised light highlights the textural and structural characteristics of the sample. The microstructural, mineralogical and micropalaeontological characteristics allow to divide several flint types and suggest their geological age. The most common is the stone tools for which was used the Carbon flint. There are several samples of Jurassic and Cretaceous ages. Carbon flint was found in the site as pieces of rounded pebbles. The outcrops of flint sources in this region are covered by Quaternary deposits. The Quaternary deposits in this area are presented by the Upper-Volga outwash alluvial lowland with the depth of about 100 m. Lowland transect to Klinansko- Dmitrov moraine-erosion ridge. We suppose that the main raw sources are the alluvial and moraine deposits of Quaternary age. It is possible also that some samples from flint of Cretaceous age were import items.

TH5-01 Abstract 13
Contribution to the flint characterization from the Mons Basin (Belgium). New data for mining sites

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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 8th 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, Flènu 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 diagenetic processes in the Mons Basin. Furthermore, a pilot study on laser-induced breakdown spectroscopy (LIBS) contribution to flint characterization is currently being conducted.
Unravelling the formation processes of the archaeological record by integrating environmental archaeology and traditional field excavation

Saturday, 3 September 2016, 09:00-18:30
Faculty of Philology, Room 92
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Co-author(s): McPandell, Hayw, University of York, York, United Kingdom

Keywords: Environmental archaeology, Site formation processes, Taphonomy
Presentation Preference: Regular session

In 1987 Michael Schiffer published the hugely influential ‘Formation Processes of the Archaeological Record’, which has continued to be consulted to interpret the biographies of archaeological materials, the formation of refusals 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, geoarchaeology, palaeoentomology, palynology, and ziosarchaeology, 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.

A multi-disciplinary approach to formation and abandonment processes within later prehistoric houses

Author: Dr. Romanikiewicz, Tanja, University of Edinburgh, Edinburgh, United Kingdom (Presenting author)
Co-author(s): Dr. Hunter, Fraser, National Museums Scotland, Edinburgh, United Kingdom

Keywords: Abandonment processes, Architectural analysis, Prehistoric building materials
Presentation Preference: Oral

From the Bronze Age to the Late Iron Age people in Britain lived in roundhouses. They generally kept them clean which created wear, brush and cut patterns on the soft lowland soils. Later truncation left little remains behind apart from flew lowly fragmented artefacts, the fills of negative features such as pits and postholes which can contain deliberate structured deposits, and the evidence from the unwear depressions. The material recovered from these bowls or the top fills of features is often ignored as representing redeposited material that can yield little securely stratified information. These deposits are either midden-rich, some showing a degree of lensing, or represent a bulk of homogenised but often artificially sterile infill. This paper is interested not only in the formation processes but the nature of their infills and the research potential of such redeposited "rubbishes". The multi-disciplinary approach based on recent excavations in Scotland uses micro-morphology, archaeological analysis of structure and building materials and experimental reconstructions from Britain and beyond. Results suggest that the accumulated infills in the worn hollows are unlikely to be contemporary with the final house occupation, but represent post-abandonment processes not linked to the particular structure, but to wider site activities. The homogenous bulk of material infill represents the remains of the houses’ superstructures and is studied at macro- and micro-levels to identify their organic building materials such as timber, turf and earth which are usually assumed to be “lost”. Interpretations working with such redeposited material move away from trying to understand each structure on a site individually and towards studying these within a model that postulates a cyclical site use, in which individual features and materials change function and substance because they are interlinked in larger economic and cultural processes.

Interpreting silos deposits in medieval Mediterranean France: archaeo-botanical approach

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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 enslaving areas, some of them formed by thousands of silos. The discovery of such structures systematically raises the archaeologists the issue 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, so far, poorly documented by archaeobotany in this area. New archaeobotanical investigations on several sites in Languedoc-Roussillon allows us to present a review of the results on storage practices in this region, and a discussion on the methods by which archaeobotany can enlighten the existence of primary deposits in enslaving 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 reconstruction of past environment exploited.

Exploring house (after)lives at catalhöyük West via microstratigraphy and animal bone taphonomy

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Keywords: Bone taphonomy, formation processes, microstratigraphy
Presentation Preference: Oral

This paper presents recent work on the catalhöyük West Mound (Turkey, ca. 5900-5800 BC), combining microstratigraphy and animal bone taphonomy to explore the use lives of buildings. Research on architectural stratigraphy and particularly on formation processes of infill deposits has demonstrated that buildings underwent several phases of use, abandonment and modification, and that at various stages of their lives they were used for different activities and purposes that included storage, refuse disposal and burial. While stratigraphy provides a relative sequence of events, animal bone taphonomy provides data on the nature and rate of deposit formation processes, allowing us to begin to approach the duration of each stage in the buildings’ lives. These observations can be linked with interpretations of social processes during a phase of Anatolian prehistory that saw societies transform to become more mobile, fluid, and competitive.

When someone walked in these buildings (geoarchaeology of soils)

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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 datas and artefacts of the beginning of the medieval period.

The national institute Inrap which was in charge of many of these projects, operated numerous related disciplines of the archaeology such as geoarchaeology, archeozoology, archeobotany. It was in particular possible to make experiments, such as they were able to be put forward in particular on plan of the Channel relieving the river Saine and the North of Europe (code CSINE). 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 scientist and the available human being. All the archaeological units of this type have been searched and...
Cesspits and the P-P-P-P-problem:

Reinterpreting pits and post-holes: Archaeobotany as a tool to access site formation processes

Provided by: International Conference on Science and Multidisciplinarity in Archaeology

Abstract 05

Cesspits and the P-P-P-P-problem: The pitfall of the Pompelmi premise and the palimpsest

Reinterpreting pits and post-holes: Archaeobotany as a tool to access site formation processes

Abstract 06

Cesspits and the P-P-P-P-problem: The pitfall of the Pompelmi premise and the palimpsest

Reinterpreting pits and post-holes: Archaeobotany as a tool to access site formation processes

Abstract 07

Pit-filling processes at the Bronze Age site of Monte das Cabanas (Northwest Iberia)

Provided by: International Conference on Science and Multidisciplinarity in Archaeology

Abstract 08

Cooking pits, formation processes and democracy

Provided by: International Conference on Science and Multidisciplinarity in Archaeology

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 macrofossiles and radiocarbon dating were collected.

The results from the analysis of the ratio of firecracked stones show that this is a way to group the cooking pits. The macrofossiles analysis concluded that one type of pit was used for processing grain. The lipid analysis also support this and the lipid acids from animals implies that another type may have been used for processing meat. The soil chemical analysis strengthens the grouping of the pits but also supports an even finer grouping. Finally the soil chemical results from the surface 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 radio carbon datings shows that the site was occupied temporarily. The site was situated at some distance from the nearest known water body. Our interpretation is that the site was an activity area and that it lasting at least three phases have been used for processing grain. It seems possible to compare this with historically known roasting activities. These were also performed separately from the settlements. It is an activity that is often associated with women, but the place was also known as a gathering point for others in the society.

By focusing more thoroughly on one type of structure we have been able to gain more understanding of 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 demographically on different types of structures and sites.

TH5-02 Abstract 09
Transdisciplinary results of site formation processes in the wetland site Zug-Riedmatt (Switzerland)

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Keywords: archaeobotany, micromorphology, Neolithic

Presentation Preference - Oral

At Zug-Riedmatt, excellently preserved waterlogged organic layers were conserved in a depth of 6m, below the detritic deposits of the river Lorze into Lake Zug. The layers have been accumulated during the Neolithic settlement activities between 3200 and 3100 cal BC. Even though only a small part of the site was excavated, an exceedingly dense recovery technique was used, ensuring that the site could be investigated in detail in the lab. Using a microarchaeological methodological approach, 78 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 of the paper is, thus, to understand such contradiction and to discuss further hypotheses regarding the possible agents of natural and immediacy - with patterns of use of apace and material deposition. Field excavation and sediment sampling from recently preserved archaeological evidence, an integrated approach examining the different scales of the archaeological record can successfully reconstruct human behavior and the formation processes of archaeological sites.

TH5-02 Abstract 10
Formation processes related to foragers in tropical forests

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Keywords: Foragers, Formation Processes, Tropical Forests

Presentation Preference - Oral

Although an important habitat for human societies, the study of archaeological site formation in tropical forests has been less studied compared to temperate and arid environments. Nonetheless, in addition to environmental factors, human behavior plays a significant role in the formation of the archaeological record. This paper focus on the study of archaeological site formation processes related to forager ways of living in a tropical forest environment. It presents a geo-archaeological case study from South India where an integrated approach involved long-term ethnography, field excavation and geoarchaeological laboratory-based analyses.

This integrated approach enabled to associate social and cultural aspects of forager ways of living - such as mobility and immediacy - with patterns of use of space and material deposition. Field excavation and sediment sampling from recently abandoned sites of the same group, allowed the investigation of post-depositional processes at both the visible and invisible (micro-and sub-microscopic) scales of the archaeological record. The geoarchaeological analyses included the study of the different scales of the archaeological record - from macroarchaeological and field prospection to sub-microscopic scales of the archaeological record. The results of the geoarchaeological analyses exhibit the environmental post-depositional processes occurring in tropical forests, mainly characterized by acidic conditions and intensive biological activity. Overall, although forager ways of living and the environmental conditions in tropical forests challenge the formation of a well-preserved archaeological evidence, an integrated approach examining the different scales of the archaeological record can successfully reconstruct human behavior and the formation processes of archaeological sites.
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

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Keywords: Antiquarian, Malta, Temples

Presentation Preference - Oral

The great megalithic Temples of Malta were first examined in a systematic manner in the early years of the 20th century by antiquarian archaeologists. Thomas Ashby and Eric Peat from the UK joined Theaistoscius Zammit in Malta in the first properly recorded excavations, and their published records provide an interesting and excellent example of early work. A century later, as part of the ERC FRAGSUS project, three temple sites have been re-examined, in the quest for new samples for dating and palaeoecological analysis and in doing so have reinterpreted the work of these earlier scholars. This paper reviews how archaeological approaches to megalithic prehistoric sites have changed over a century by drawing some surprising conclusions about the quality and the questions of these pioneers. The current study is employing a range of interdisciplinary approaches to develop and enhance the archaeological record through coordinated methodologies to extract the maximum information from the remnants that remain.

TH5-02 Abstract 14
Interdisciplinary research for unravelling the chronology of archaeological sites of Ulów (Poland)

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Keywords: Archaeology, Radiocarbon dating, SE Poland

Presentation Preference - Oral

A group of archaeological sites located near the village of Ulów in Central Roztocze (Lublin voivodeship, south-eastern Poland) was discovered by people using metal detectors when searching for military items from World War II. The first archaeological survey was carried out in 2001 and proved that an extensive forested area, previously considered as unsettled in prehistory, contained remains of multicultural settlements. The systematic excavation works began in 2002 and have been intensified since 2014, when a research project entitled “Roztocze – the ancient terra incognita” (Settlement micro-region in the area of Ulów in Middle Roztocze in the prehistory and its background. Interdisciplinary studies) obtained financial support from the National Science Centre in Poland. The main scope of the research is the reconstruction of processes behind prehistoric settlements in this area based on interdisciplinary investigations, including archaeological, anthropological, geomorphological, and archaeobotanical research, among others. In this area, the archaeological site 3 is especially interesting when taphonomic problems are considered. It was largely investigated and showed evidences of long-term occupation since the Late Neolithic and Mesolithic until the Middle Ages. However, the majority of archaeological features belong to the Late Neolithic Corded Ware culture and a cemetery of the Roman period Welbark culture. The taphonomic problems were initially revealed by anthropological studies, which documented a large variety of woolly taxa and indicated preferences in their use in specific types of archaeological features. A group of selected charcoal samples were used for radiocarbon dating, especially those coming from various types of archaeological features and those that differed taxonomically. The results showed that a group of features with evidences of burning activities and with a small amount of archaeological material, which previously were interpreted as funeral pyres belonging to the Roman period cemetery, turned out to be of Late Neolithic origin. Another problem in this cemetery was the discrepancy between dating results of charcoal and well-dated objects according to the relative chronology that were found in the same graves. Also, radiocarbon dating indicated a much greater intensity of settlement dated to the early and late stages of the Middle Ages, which was not hitherto assumed by single Late Neolithic and Mesolithic finds. Moreover, the archaeobotanical analysis of barrows dated to the Corded Ware culture, complemented by radiocarbon dating, demonstrated taxonomical and chronological differences between original burials and areas that were disturbed in later periods. The results from the current study show that a full reconstruction of the different phases of multicultural archaeological settlements is only possible by the implementation of a complementary and interdisciplinary approach.

TH5-02 Abstract 15
An interdisciplinary approach to the study of a stratigraphic sequence from Malalebo (Italy)

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Keywords: Bronze Age site, palaeoenvironmental studies, stratigraphic sequence

Presentation Preference - Oral

The Middle to Recent Bronze age site of Ponticelli di Malalebo 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 deposit conditions guarantee the removal of most of the reworking and pollution conditions usually affecting the outcropping archaeological sites and related peleosols. In such a way archaeological and palaeoenvironmental studies can be successfully performed.

The related soiltop was laying at 6.45 m of depth (+2.35 m a.s.l) while the Roman age topsoil was recorded at 5.7 m (+3.3 m a.s.l) characterized by anthropogenic layers (Ap horizon). The site was resting on sandy loam sands possibly linked to a possible coeval riverbed or related structures. Clayey soils dated 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 eastwards open, alluvial basin happened probably at the end of the High Middle Ages or the beginning of the Free Common age (XI-XII century AD).

In the 18th century AD the prograding alluvial ridge of the Reno river new course developed uppermost about 3 m of sandy loams. This site states for the first time that the core of the alluvial plain was at some extent drained and suitable for 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 paleo anthropogenic soil horizon dating to the Bronze Age recorded: 120g/kg CaCO3; 30 g/kg Organic Matter; 8-11 g/kg Nitrogen; 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 Neolithic? The evidence of first farmers in south-western Slovakia

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Keywords: environment, Neolithic, pottery technology

Presentation Preference - Oral

The beginning of the Neolithic in south-western Slovakia was so far mainly studied from typological-chronological perspective. Most of the find assemblages come from the older rescue excavations, field surveys, stray finds or finds without reliable find circumstances. These factors and the lack of multidisciplinary approach did not allow researchers to study the neolithisation process in a more depth.

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 Břež, which flows into Isper. The constant monitoring of the site since 2012 and subsequent archaeological excavation with interdisciplinary approach has allowed a new insight into the transition of Mesolithic and Neolithic. The presence of thermal springs led during the Quaternary to the accumulation of travertine mounds. The Holocene formation of travertine dammed the creek Břež and led to the accumulation of calcareous clay during the Early Holocene. The analysis of plant microfossils and molluscs dated to the first half of the 6th millennium BG 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 matter from pottery correspond with the end of 7th and beginning of 6th millennium BC. The pottery is well preserved. The morphology and a high proportion of inorganic matrix are not of local origin and point out the sources of the raw material originated from the southern foothills of Štěpánek 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 21

Plant macroremains as proxies to understand formation processes in lakeshore settlements

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Keywords: archaeological, preservation parameters, wetland archaeology

Presentation Preference - Oral

Anthropogenic deposits in wetland sites are mainly characterized by the presence of archaeological artefacts and clusters of organic remains resulting from the dumping of food or other useful plant remains (incl. cultivars), accumulations of dung and other organic debris like leftovers of building activities. How formation processes affect the preservation of these remains and the degree of representativeness of the resulting data is still largely unknown.

A recently excavated Late Neolithic settlement phase at the site of Parkhaus Opera (Lake Zurich, Switzerland) offered the unique opportunity of sampling a well-preserved waterlogged layer that spread over 3000 m². A systematic sampling strategy was conducted and an ambitious project funded by the SNF (Swiss National Science Foundation) was organized in order to approach several methodological and research issues, among which was the identification of relevant parameters in archaeological remains to characterize layer taphonomy. Uncharred plant remains are amongst the most fragile remains in such sediments and therefore ideal candidates for answering taphonomic questions. Based on previously published research and own experience we have defined around 70 variables (which included not only plant remains but also remains of diverse origin which appeared in archaeological samples) which are considered to be indicators of preservation conditions. These variables were described for ca. 250 large-volume samples (ca. 0.5 L) and ca. 120 small-volume samples (ca. 0.3 L). We developed specific quantification criteria that can be applied in a rapid yet informative way. The data were evaluated on the basis of ubiquity, and through qualitative evaluations of the spatial distribution of the variables (with GIS maps). The results seem to allow a clear distinction between well-preserved parts of the layer and eroded parts of the layer, including parts that were eroded in connection to lake influence in opposition to other erosive processes. These results make us suggest that such evaluations should continue to take place in the future if proper palaeoecological evaluations of archaeobotanical remains are to be done.

TH5-02 Abstract 23

Material culture and formation processes in archaeology

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Presentation Preference - Poster

The importance of formation processes in archaeology is unquestionable. They condition the stratigraphic circumstances of sites and are determining factors for understanding the phenomena of occupation, abandonment and post-abandonment of archaeological structures and sites. To know, for example, whether we are dealing with the level of use or destruction of a building is basic to be able to correctly reconstruct its biography, to determine its level of residuality or to establish its chronology.

We believe, however, that the study of the formation of the archaeological record has not been developed as it might have been, either theoretically or methodologically. In fact, the works of reference continue to be those written by M.B. Schiffer in the late third of the 20th Century. This investigator introduced the concept of “systemic context” (dynamic stage during which elements shared the culture of their societies and different processes of aggregation and elimination were produced) and “archaeological context” (state in which these same elements have come to us over time, that is, the context of archaeology). Understanding the first will give us a better understanding of the second, in a process in which material culture plays a fundamental role as a link between both. It is precisely this aspect, the relationship between stratification and objects, that we want to discuss in this poster.

Starting from the experience accumulated by our group in field excavation, this study aims to characterise the main types of deposits that are recorded in an archaeological site, generating a reference framework that could be used as a hermeneutic and decontextualising tool of the archaeological record. For definition purposes, we will use 3 stages that are acknowledged in the lifecycle of any place (occupation, abandonment and post-abandonment), each of which comprises moreover different aggregation and reduction processes. Within the aggregation processes, we will pay special attention to pottery recovered 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 contexts contribute to the presence of pottery in a very different manner.
TH5-02 Abstract 25

EcoPlis: characterizing the prehistoric human occupations in the Lis River Basin (Portugal)

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Keywords: EcoPlis, Human occupation, Prehistory

Presentation Preference - Poster

The River Lis Basin, located in central Portugal, is an ecotone between the coast and the inland mountains. The unique conditions for highly preservation of both organic and inorganic materials make it a key region to acquire high-resolution data from both geological and archaeological contexts, fundamental for understanding features of hominin behaviour, such as mobility, site use, adaptive strategies and resource exploitation, namely from the highly productive coastal environment.

Besides hundreds of open-air sites, this basin also has hundreds of caves and rockshelters, many of them with sediments reaching their roofs and with clear evidence of human occupation. In those already tested it was possible to recognize well-preserved multi-occupational archaeological layers, several types of artefacts made in organic and inorganic materials and also human burials. In 2015, the EcoPlis research project was started with the goal of find and characterize, with the highest resolution possible, the complete sequence of the Middle and of the Upper Palaeolithic occupations in the Western-most Iberia. 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 Achellean to the Chalcolithic and start the excavation of two caves and a rockshelter. Our approach includes the 3D piece-building 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 protocol, we could recognize fine lenses of deposition of the natural and archaeological remains in a same archaeological layer that will allow us to create detailed diachronic and synchronic snapshots of the human occupation and ecodynamics of this region throughout its Prehistoric occupation.

TH5-02 Abstract 26

Palynological contribution for formation processes reconstruction in a Neolithic pile dwelling site

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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 palaeo-environmental 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 (Síria, Spain), a pile dwelling site located in the shore of Lake Banyoles.

TH5-02 Abstract 27

Multidisciplinary aproach in the anaylsis of a 9th century settlement from Carpathian Basin

Author - Fekete, László, Herman Otto Museum, Miskolc, Hungary (Presenting author)

Presentation Preference - Poster

The Avar Khaganate was failed in the begin of the 9th century by Charlemagne’s campaigns. In the Carpathian Basin have not data about the people of the Khaganate. In 2014 the excavation at Hévízvárógát-Malomcsög increased our knowledge about the Bódva-valley in the 9th century. The settlement features of this site are well-known from other contemporary archaeological sites. Long- shaped, round-cornered pits are dominant, but without any further information, one can only guess at their function. The two outer furnace of Hévízvárógát are of great importance because this furnace-type is rare in the 9th century. The lack of sunken featured buildings could allude to the usage of blockhouses. In spite of their low number, the pottery fragments are various. The firing methods are also various. The high amount of porous pottery with gas bubbles is a local speciality. The chernic’s ornamentation is uniform: it consists of wave-mouldings and stripes. By analogy with contemporary material, the pottery fragments can be dated to the 9th century. The excavation’s most outstanding item is a hornjar. Archeologists agree that hornjars were used as saltcellars and they have an Avar origin. The dating of the artifact is difficult; the motifs of the ornamentation refer to the 9th century. The little traditionally archeology date completed by many archeometrical methods. Several institute made investigation on the found. So we have petrographic analysis, radio-carbon and termoluminescence dating and xylotomnic analysis. The local population’s ethnicity is hard to define. The Avar people must have survived the fall of the Avar Khaganate and might continued their life at the same area they lived before. Despite of the linguistic sources, there was no evidence of local slavic population in the excavated archeological material. The population that lived at Hévízvárógát-Malomcsög probably had an Avar origin and it can be suggested that they lived there permanently and they lived Conquast of the Hungarians.
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 ~2500-2350 calBP, in the Butkhurui mortuary tradition. Stable isotope data are also obtained from five pastoralist period faunal species (n=22: horse, sheep, goat, cow, deer). As well, every pastoralist skeleton is examined for paleopathological evidence of trauma, disease, and morphological alteration.

Isotopic results demonstrate that foragers utilized a mixed subsistence strategy, relying considerably on the lake’s many fish species, and possibly also on the Baikal freshwater seal. In particular, Cis-Baikal pastoralists have stable nitrogen ratios from −11.0 to 18.0‰, which is two to three trophic levels higher than the domesticated fauna (mean −4.0 to 5.0‰), with slightly lower δ15N values in individuals from later periods. Pastoralists from the Butkhurui period have stable carbon values that are 2.0 to 4.0‰ less negative than those of the domesticated fauna, which can be explained by consumption of freshwater vacuoles. In some later period pastoralists δ13C values become even more negative, which, in conjunction with lower δ15N values, suggests the C4 plant millet may have been consumed either by people or their livestock. Yet, fish remained an important part of the pastoralist diet up to modern times.

Many of the skeletons were very incomplete, limiting paleopathological investigation. Of the more complete skeletons, by far the most common pathological lesions are osteoarthritic changes and degenerative disc disease (n=9) and spondylolysis of the fifth lumbar vertebra (n=3). One older male had a healed tibia-fibula fracture and two individuals had genu valgum in the spread of the maladies, and whether diseases can alter the biogeochemical signals in the tissues deserve further in depth attention. This session aims to bring together archaeologists, physical anthropologist, paleopathologist, archaeozoologists and scholars related with these topics. The objective will be to explore the connections between diet, mobility and disease, analyzing human and animal remains. The non-exclusively unresolved problems to discuss about are: i) the impact (absence) of the introduction of new foodstuff in the health status of a population, ii) growth patterns and health outcomes, iii) changes in human and animal subsistence strategies and consequences on their lifestyles, iv) the exposure to toxins (e.g. trace metals) and how to tell these effectively from post-mortem contamination, and v) the relation between (infectious) diseases and mobility. We welcome papers on case studies in these or similar topics, as well as contributions that address methodological aspects such as intra-skeletal variability or new bone chemistry applications (e.g. FTR, Py-GCMS, multi-isotopic studies, proteomic, etc.).

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TH5-03 Abstract 04
Late Iron Age Switzerland - New isotopic evidence for dietary habits of “Celtic” populations

Author - Moghadam, Negahnam, University of Bern / Institute of Forensic Medicine, Bern, Switzerland (Presenting author)
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Investigations of stable isotope ratios from human remains in relation to geographical regions, sex, age, grave goods and chronology allow statements about the living and environmental conditions in ancient times. Stable isotopes do not decay over time and are therefore ideal tracers in biological systems. Swiss Late Iron Age series are of great importance for research on European populations of the Late Iron Age (450 to 15 BC). Written sources are scarce and biological-archaeological analyses provide direct statements about the individual individuals. Human remains (N = 146) from burial sites of different regions at the Swiss Plateau and the Swiss Alps were analysed. Collagen was extracted and stable carbon, nitrogen and sulphur isotopes were analysed. Additionally, published data from Münsingen (Moghadam et al. 2016) were included for comparisons.

All data were analysed for sex, age, regional and chronological differences within and between the burial sites. Stable isotope data indicate an overall diet mainly based on animal protein and plants following the C3 photosynthetic pathway. Significant differences between the Swiss Plateau and the Swiss Alps were found with more positive 813C and 815N mean values observed for the Swiss Alps. Some individuals indicate a significant intake of C4-plants in the diet. Cultural and/or climatic changes as well as different geological conditions might have led to distinct patterns of crop cultivation and animal husbandry. No significant differences could be detected between males and females as shown for Münsingen. Regarding the age classes the 815N values follow an isotopic trend indicating a breastfeeding signal for infants. The 818O data suggest a more terrestrial based diet with minor consumption of freshwater fish. Differences in the 815N data might reflect different local vs. younger 815N values with minor mobility in Late Iron Age populations.


TH5-03 Abstract 05
Dietary and social patterns in early medieval south-west Germany – a stable isotope approach

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This presentation explores the social dynamics of food resources and the establishment of dietary differences in the early medieval Alamannia. Differential dietary patterns develop through various socio-cultural, economic and environmental factors and may be expressed in an unequal distribution of food resources or food preferences within a society or differential subsistence strategies between populations. The Alamannic row graves in southwest Germany present a substantial source to study these factors for a number of the 5th-8th century AD with an allegedly ranked but somewhat fluid social system.

The analysis of stable carbon and nitrogen isotopes in bone collagen of adult human and faunal remains of row grave cemeteries (Fridingen a. d. Donau (N = 65), Kirchheim u. Teck (N = 62), Neresheim (N = 54)) and the separate necropolis (Niederstotingen (N = 10)) is conducted in order to investigate the interaction of resources such as diet, socio-cultural and gender identities in the framework of the respective natural conditions. The comparison of dietary proxies, archaeological and environmental data reveals a pattern of divergent internal dietary structures between settlement sites, reflecting different strategies in more or less favorable locations in the Frankish Empire as well as chronological changes. Higher amounts of animal protein in the diet of individuals buried in exceptional places (e.g. burial mounds) in Fridingen a. d. Donau and Niederstotingen indicate socio-cultural dynamics, where special treatment in death is connected to dietary distinction during lifetime.

TH5-03 Abstract 06
What ate and who were people buried in the early medieval chamber graves in Poland

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Keywords: chamber graves, early Middle Ages, stable isotopes analyses, diet, provenance

This paper will present and discuss results of stable isotopes analysis of carbon and nitrogen for a diet as well as strontium and oxygen for a provenance from 6th injection 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 isochronous in the central medieval village of Blokhuzen (AD 1000-1200) to the late medieval town of Akmaar (AD 1448-1572) using a combination of dental disease and stable isotope data. The teeth results clearly point to a dietary shift (213 individuals analysed). The urban population of Akmaar 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 Akmaar showed significantly enriched 815N ratios and had more variable 813C ratios than the population from Blokhuzen. This may be due to increasing consumption of freshwater or marine fish by the people of Akmaar. Alternatively, the consumption of animals/animal products of a high trophic level such as chicken, eggs, and pigs could have contributed to enriched 815N ratios.

A difference in the patterning of caries and isotopic data in males versus females between the two populations also demonstrates a dietary shift. In rural 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 Akmaar, 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 815N 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 beer should be considered.

The combination of caries and isotopic data points to clear changes in diet for urban individuals of late medieval Holland. It is hypothesised that an increase in market dependence and availability of international trade products in the late medieval period contributed to this dietary shift. Through the urban markets, new products such as fresh fruits, but also sugar and honey, became more widely available. Additionally, new techniques for preserving fish may have resulted in increased consumption of marine foods in towns. Moreover, a greater component of omnivores of high trophic levels in the diet could have contributed to the observed dietary shift. This study demonstrated that the integration of paleopathological and isotopic research provided a more complete understanding of dietary changes in medieval Holland.

TH5-03 Abstract 07
A paleopathological and isotopic approach to dietary changes in medieval Holland

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The late medieval period in Holland was characterised by substantial socioeconomic changes. While the region was largely underdeveloped prior to AD 1200, after came large scale urbanisation and flourishing international trade, changes that would have impacted many aspects of life. This paper investigates the effect of these changes on diet by comparing skeletal collections from the central medieval village of Blokhuzen (AD 1000-1200) to the late medieval town of Akmaar (AD 1448-1572) using a combination of dental disease and stable isotope data.

The caries results clearly point to a dietary shift (123 individuals analysed). The urban population of Akmaar 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 Akmaar showed significantly enriched 815N ratios and had more variable 813C ratios than the population from Blokhuzen. This may be due to increased consumption of freshwater or marine fish by the people of Akmaar. Alternatively, the consumption of animals/animal products of a high trophic level such as chicken, eggs, and pigs could have contributed to enriched 815N ratios.

A difference in the patterning of caries and isotopic data in males versus females between the two populations also demonstrates a dietary shift. In rural 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 Akmaar, 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 815N 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 beer should be considered.

The combination of caries and isotopic data points to clear changes in diet for urban individuals of late medieval Holland. It is hypothesised that an increase in market dependence and availability of international trade products in the late medieval period contributed to this dietary shift. Through the urban markets, new products such as fresh fruits, but also sugar and honey, became more widely available. Additionally, new techniques for preserving fish may have resulted in increased consumption of marine foods in towns. Moreover, a greater component of omnivores of high trophic levels in the diet could have contributed to the observed dietary shift. This study demonstrated that the integration of paleopathological and isotopic research provided a more complete understanding of dietary changes in medieval Holland.

TH5-03 Abstract 08
The mobility at medieval cemetery in Hamina in northern Finland

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Keywords: mobility, strontium isotopes analysis

Strontium 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 In 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 has been thoroughly investigated in the area. In this study, strontium isotope ratios were analysed from samples of ten people. Moreover, local plant materials were collected for a baseline study on this remote area. Preliminary results suggest that strontium isotope analysis should be interpreted with caution when the population has a large input of aquatic food in their diet.

TH5-03 Abstract 09
Diet, morbidity and mortality of a north Finnish town 1600-1800 AD
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Keywords: CT and SIA, Finnish Lapland 1600-1800, morbidity, mortality and diet
Presentation Preference - Oral

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 profile or amino acid racemization. In addition, spectroscopic techniques provide a sensitive, non-destructive method to investigate the molecular structure of extracted collagen; however, a deep knowledge of multivariate statistics is required to deal with the large amount of data generated. We used FTIR spectroscopy to characterise non-ultrafiltered collagen extracted from 50 skeletons recovered in 8 necropoleis from NW Spain, representing a wide chronological period (~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 diagonal changes:
1. a primary process leading to the preferential loss of collagen α-helix and a residual increase in carbohydrates, and ii) a secondary process related to the loss in β-sheets; and two minor components related to: i) variations in aliphatic side chains and ii) absorptions of the OH of carbohydrates and amide A. Highly significant regression models were obtained for the quality indicators (collagen yield, C, N and C:N ratio) using the principal components as predictors, but no relationships between the δ13C and δ15N and the components were found. Our data suggest that the decrease in C and N contents and the increase in C:N ratios are caused by the degradation of the protein and the relative preservation of carbohydrates. It can be concluded that the extracted archaeological collagen does not seem to be contaminated with exogenous organic substances; for the studied samples there is a continuous change in C, N, and C:N ratios that is coupled to the structural integrity of the collagen; and the observed diagenetic changes in collagen composition/structure did not affect in a significant way the δ13C and δ15N values, thus supporting their use for paleoecological reconstruction.

TH5-03 Abstract 10
Dietary variability among earliest domesticated pigs in the Iberian Peninsula
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Keywords: Early Neolithic, Foddering strategies, stable isotopes
Presentation Preference - Oral

Dietary variability among earliest domesticated pigs in the NE Iberian Peninsula (5700-3500 cal BC): a stable isotopic perspective
Domesticated pigs (Sus domesticus) played an important role in the Early Neolithic economy of the western Mediterranean. Studies from the Iberian Peninsula reveal that their exploitation followed a systematic pattern oriented to the production of meat, for example with animals slaughtered between the age of 18 to 24 months. While this pattern appears relatively homogeneous over this region, local 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 been never systematically applied to animal bone remains from this region. In order to investigate how early Neolithic communities raised and managed domesticated pigs in the NE Iberian Peninsula, we selected a rich assemblage of wild and domestic pig bones from Neolithic sites, dated between 5700-3500 cal BC, for carbon and nitrogen stable isotope analysis. The results reveal remarkable diversity in the diet of domesticated pigs between sites, pointing to the existence of different management strategies. This study shows the correlation of the results by the type of diet: (i) pastures, (ii) market garden or hill pasture and (iii) different occupation phases within settlements. Differences between settlements point to the diverse importance of pig management in husbandry practices. We discuss the implications for understanding management strategies during the regional development of the Neolithic economy in the NE Iberian Peninsula.

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

FTIR spectroscopy is a powerful technique that has been used for many years in archaeology to study the chemical composition of materials and to analyze the alteration and degradation processes that have affected them. In recent years, FTIR has been used to investigate the preservation of bone collagen in archaeological samples. This technique allows the identification of specific bands that are characteristic of the molecular structure of collagen, which can be used to assess the quality of the extracted collagen. However, the use of FTIR in this context has been limited due to the technical difficulties involved in the analysis of archaeological samples and the lack of knowledge about the spectral changes that occur during the preservation process.

In this study, we investigate the frequency and even the presence of the allele thought to be protective against leprosy What can FTIR tell us about archaeological bone collagen preservation? TH5-03 Abstract 12
Leprosy of the past: The genetics behind pathogen-host interactions, as revealed by ancient-DNA
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Keywords: genetics, immunity, leprosy

Presentation Preference - Oral

Leprosy is a well-studied disease of the past. Its significance in paleopathology has been secured due to many historical references, bone lesions that allow osteoarchaeologists to document its presence in the archaeological record, and various biomolecular studies that have traced the pathogen’s genetic mark.

The causative agent (Mycobacterium leprae) has been proven to be an organism that does not exhibit much variability, neither in terms of time nor in space. However, studies have shown that a distinct phylogeography seems to exist, allowing researchers to discuss several scenarios about how leprosy spread across the world. In contrast to the limited genetic variability of the pathogen, however, the clinical symptoms of the disease vary to such a degree that this has led to the notion that it is the host’s immune system that plays the major role in the development of the pathogenesis.

We used FTIR spectroscopy to characterise non-ultrafiltered collagen extracted from 50 skeletons recovered in 8 necropoleis from NW Spain, representing a wide chronological period (~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 diagonal changes:
1. a primary process leading to the preferential loss of collagen α-helix and a residual increase in carbohydrates, and ii) a secondary process related to the loss in β-sheets; and two minor components related to: i) variations in aliphatic side chains and ii) absorptions of the OH of carbohydrates and amide A. Highly significant regression models were obtained for the quality indicators (collagen yield, C, N and C:N ratio) using the principal components as predictors, but no relationships between the δ13C and δ15N and the components were found. Our data suggest that the decrease in C and N contents and the increase in C:N ratios are caused by the degradation of the protein and the relative preservation of carbohydrates. It can be concluded that the extracted archaeological collagen does not seem to be contaminated with exogenous organic substances; for the studied samples there is a continuous change in C, N, and C:N ratios that is coupled to the structural integrity of the collagen; and the observed diagenetic changes in collagen composition/structure did not affect in a significant way the δ13C and δ15N values, thus supporting their use for paleoecological reconstruction.
to be lacking in specimens from the Stone Age. Thus, we discuss whether there has been selection of this allele, as well as the possible routes that it followed in order to enter Europe and give rise to its prevalence today.

TH5-03 Abstract 13
Finding a common framework for skeletal science in Archaeology
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Keywords: life conditions, population/environment perspective, skeletal science
Presentation Preference - Poster

Skeletal science can be defined as the application of scientific techniques to the analysis of archaeological skeletons. It includes various approaches such as stable isotope analysis, ancient DNA and elemental composition; as well as other of more recent introduction as FTR, pyrolysis-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 pursuad aim is to reconstruct different pre-mortem features (i.e. diet, mobility and health) of the individuals the skeletons belonged to. Thus, it is well 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 signs.

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 human evolution. Addressing the issue of past single cases may introduce. And the population perspective should be embedded within an integrated vision of the environment, whose changes challenge human populations at many levels (e.g. health, resources availability, migrations). The changes also pertain to specific human activities such as mining and metalurgy that may pose a threat (e.g. metal pollution) both to the societies and the environment.

Moving our focus from the straight 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 for the population/environment perspective should be implemented to be able to use these methods in a more complete and integrated way.

TH5-03 Abstract 14
Famine to find God? Isotopic approaches to Nuns’ diet of the Convento de Belmonte, Cuenca, Spain
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Keywords: isotopic analysis, paleodiet, paleopathology
Presentation Preference - Poster

The advances in geochemical and physical anthropological studies have provided new tools to reconstruct the lifestyle of archaeological populations, especially on those minorities not commonly mentioned in the texts. This is the case for nuns. Despite the relative availability of works dealing with religious communities food and everyday life, these are almost exclusively focused on male, i.e. monks. However, the habits of the cloistered nuns have remained invisible to chronicles as well as to archaeologi- cal populations, especially on those minorities not commonly mentioned in the texts. This is the case for nuns.

No correlation has been found between the size of the sheep and their isotopic signal. Gallus also show a quite large variation in 15N, while pig values are more homogeneous. Terrestrial animals 15N ranges from -18.3% to -21.0% including herbivores, which suggests a low intake of C4 plants in some of them.

In contrast to humans, 13C values are within a limited range (-17.6% to -18.6%), but 15N 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 15N due to autocalbism of proteins. The paleopathological study also supports the assumption of a very austere life, e.g. muscular/skeletal stress markers and osteoarthritis have a high presence in the sample. This intriguing hypothesis demands more research to unravel the most intimate life of the female inhabitants of the cloisters in their way to find God.

TH5-03 Abstract 15
Ancient dental calculus as new source of information for a 10th century population from Dobrogea
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Keywords: dental calculus, molecular analysis, oral microbiome
Presentation Preference - Poster

A series of interdisciplinary tools can be used in order to investigate ancient dental calculus from archaeological human remains. Molecular analysis can be easily associated with microscopy techniques and stable isotope analysis in order to obtain valuable information regarding past population lifestyle. The oral human microbiome can be investigated in order to determine the bacterial specificity in the ancient populations compared to modern ones. Dietary changes are correlated with modifications in the oral microbial community structure. A series of species with particular signatures associated to human oral microbiome can be identified and tracked through space and time in the human population. The dietary preference indicates the specificity of human-environment interaction in search for food and water.

The present study aims to investigate the oral microbial diversity and the food preference of a medieval population (10th century) situated in the south-eastern part of Romania (Capătâra, jud. Constanța). Ten individuals from the population mentioned above presenting dental calculus were the subject of this research. In order to aid investigation, several methods such as stable isotope analysis, scanning electron microscopy (SEM), quantitative PCR (qPCR) and the amplification of universal barcodes for bacteria (targeting the 16S rRNA gene), fungi (targeting the ITS region) and plants (targeting the trnL intron of the chloroplast) were applied.

Acknowledgments
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TH5-03 Abstract 16
Diet and dynamics of Muslims and Christians in Montiel (11th-15th, Spain)
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The faunal sample presents a great isotopic variability. This is particularly the case for 15N of sheep. Although all these animals were adults between 18 and 24 months at death, they show a 3% range (9.6-6.8‰). This may be reflecting the wide variation of ecosystems surrounding the site including some areas with saline geological materials (e.g. continental salt mines). No correlation has been found between the size of the sheep and their isotopic signal. Gallus also show a quite large variation on 15N, while pig values are more homogeneous. Terrestrial animals 15N ranges from -18.3% to -21.0% including herbivores, which suggests a low intake of C4 plants in some of them.
Since 2012, excavations at the site of Montiel (Spain) had led to the discovery of two cemeteries, representing two socially and culturally distinct populations: one Muslim (11th-13th century AD) and one Christian (13th-15th century AD). The geochemical composition of these osteological remains (10 individuals and 21 Christians) was investigated to see how different religious beliefs, culture and social status might have influenced the diet of these populations which were buried in a similar environment and 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 food modeling throughout life. The mineral part of the bone (bioapatite) registers the geochemical composition of all the dietary constituents (lipids, carbohydrates and proteins), while the composition of bone’s organic component (collagen) reflects the geochemistry of ingested protein. The geochemical analysis of both bone bioapatite and collagen can therefore provide a detailed picture of the subsistence strategies adopted by the late medieval populations buried at Montiel.

These dietary strategies will be discussed regarding the type of plant resources, inferred from bone carbon isotopic ratios (\( \delta^{13}C \)), 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 IRMS, bone Sr/Ca and Ba/Ca ratios were also analysed to provide additional information on the trophic level, marine food consumption, as well as potential mobility. Bone Sr, Ba and Ca contents were measured using a cutting-edge technique (LA-ICP-MS) that enables us to create spatial high resolution maps of bone trace element concentrations and target preferential bone histological features which might be preserved from post mortem alteration.

This study also investigates the geochemical composition of contemporary faunal remains (ca. 10 individuals from each period studied) from neighboring settlements, with a view to establish a environmental geochemical baseline for each analytical proxy applied, and to enable the discussion of the Muslim and the Christian economy 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 Włocławek river and the Bug river, to the area of south-western Volhynia crossing the Horyn river in the area of present-day Ukraine. The highest density of its sites is in the territory of Torodło Plateau and near the town of Hrubieszów. Approximately of the Stone Age, the neolithical pastoral Corded Ware culture disappears in its extant 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 Unetic culture, and the central and eastern part (upper Odra and Vistula river basins, Lublin region, Volhynia, Podolia) is the area of the Mierzanowice culture. Approx. 2000 BC, on the basis of the geochemical composition of contemporary faunal remains 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 materials culture, comes into existence. It develops side by side with the Mierzanowice culture until approx. 1600 BC, then growing into the Trzezciul 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. The research was based on visual inspection, stereomicroscopic inspection, classic radiology. The research was supported by computer tomography imaging (CT) to obtain digital images and 3D reconstructions as well as 2D radiographs as the 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 investigation 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 sex of two individuals (children) is unknown. DNA investigations continue.

Skeletal and dental pathologies have been observed. Osteoma in the tibia of the individual found in grave No. 10 has been discovered during radiological investigations. The cribra orbitalia has been discovered on the orbital roofs of the adult individuals from grave No. 4A. The left maxillary first molar from grave No. 4A and the right mandibular second molar in the individual from grave No. 6a presented with caries. The oldest adults from the Strzyzow Culture display extreme tooth wear patterns. Three from 18 of the investigated individuals (burial No. 6A, 8 and 11) exhibited enamel hypoplastic defects easily observable macroscopically and stereomicroscopically. In all cases they presented a linear pattern, in one case (grave No. 6A) of undulating pattern. DNA analysis of bone fragments from each individual were performed. The results allowed to establish the degree of kinship among the individuals from various graves. The analysis using STR and SNP markers gave more information about the ancestry of the individuals, whose remains were excavated and examined.

The most “spectacular” results were obtained during the analysis of the remains of graves 9 and 10A - “The Warrior”, as this individual has been denominated by the research team. The analysis of STR markers located on the Y chromosome, which is inherited from father to son, showed the same haplotype between two men (grave 9 and 10A). They could have had the same ancestor in the male line, and could be brothers or cousins.
Initially, the genetic profiles obtained from the remains of the graves 10A - "The Warrior" and 10B - bone fragment derived from a child pointing a parent-child relationship. However, the genetic profiles obtained were incomplete so it was very difficult to define the relationship type. In later stages of the project it has again carried out a genetic analysis of the remains of the graves 10A and 10B, with another bone fragment (10A grave). The results of this new analysis provided a more complete genetic profile and confirmed the earlier presumption of parent-child relationship. In the analysis of mitochondrial DNA (mtDNA), the same haplotype mtDNA were observed among individuals of the graves 4B and 8, and the graves 3 and 5, which may define their kinship in the maternal line. Estimates haplotypes of mtDNA in these relationships are HT1 and HT2 respectively. In addition, mtDNA haplotypes have been obtained in the analysis of the graves 2, 6B, and 12. Preliminary results indicate that individuals belonging to haplotypes HT1a and HT2 respectively. Recent genetic studies of the remains of the burials 13 and 15 have been inconclusive about the sex of the individuals analysed. While mtDNA haplotypes indicate that they belonged to haplogroup JT.

The presented studies have proven that interdisciplinary analysis from a wide range of archaeology-related and anthropological-medical fields can assist studies and broaden the knowledge of archaeologists and anthropologists to enhance the understanding of the Strzygowski Culture.

TH5-03 Abstract 19
Cooking for the deceased: ceramic with lipids from the megalithic necropolis of Panoría (Spain)
Author - Dr. Molina Muñoz, Elena, Autonomous University of Barcelona, Bellaterra, Spain (Presenting author)
Co-author(s) - Aranda Jiménez, Gonzalo, University of Granada, Granada, Spain

The megalithic necropolis of Panoría was discovered in 2012 and supposes the latest addition to the finds of megalithic cemeteries from the megalithic necropolis of Panoría (Spain). In this poster we present the structural and chemical compositions of hundreds of bone and teeth samples from the Guadix basin (Granada) that makes up one of the most important megalithic concentrations in Europe. Intensive surveys carried out in all the dolmenic ways at Panoría have found 19 dolmens. Most of them consist of small tombs with polygonal, rectangular or trapezoidal chambers and short corridors. With one possible exception, neither the capstones nor the expected mounds have been documented. Five of these megalithic tombs were excavated between February and June 2015. Two pottery vessels, found as grave goods in Burial 10, have been analysed to extract organic residues preserved in their body because of the absorption through its pores. We have investigated the molecular and isotopic composition of organic residues by gas chromatography and mass spectrometry. Vegetal remains, mainly represented by plant oils, were the main organic residues found. For the first time for the megalithic societies of Iberia, these results shed new light on their funerary rituals as well as their food habits.

TH5-03 Abstract 20
Bioarchaeology – Behind the Scenes of Multi-Proxy Analyses
Author - Dr. Christophe Snoeck, Vrije Universiteit Brussel, Brussels, Belgium (Presenting author)
Co-author(s) - de Winter, Niels, Vrije Universiteit Brussel, Brussels, Belgium

In this poster we present the structural and chemical compositions of hundreds of bone and teeth samples from the Guadix basin (Granada) that makes up one of the most important megalithic concentrations in Europe. Intensive surveys carried out in all the dolmenic ways at Panoría have found 19 dolmens. Most of them consist of small tombs with polygonal, rectangular or trapezoidal chambers and short corridors. With one possible exception, neither the capstones nor the expected mounds have been documented. Five of these megalithic tombs were excavated between February and June 2015. Two pottery vessels, found as grave goods in Burial 10, have been analysed to extract organic residues preserved in their body because of the absorption through its pores. We have investigated the molecular and isotopic composition of organic residues by gas chromatography and mass spectrometry. Vegetal remains, mainly represented by plant oils, were the main organic residues found. For the first time for the megalithic societies of Iberia, these results shed new light on their funerary rituals as well as their food habits.

TH5-04 Abstract 01
Unravelling Cremated Bone - Structural, Elemental and Isotopic Studies
Author - Dr. Christophe Snoeck, Vrije Universiteit Brussel, Brussels, Belgium (Presenting author)
Co-author(s) - de Winter, Niels, Vrije Universiteit Brussel, Brussels, Belgium

Cremated bone occurs in many archaeological sites as small grey 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 (818Cap, 818O, 87Sr/86Sr) in both modern heated bone and archaeological cremated specimens.

In this session we present the results obtained in several heating experiments (in laboratory and natural conditions) highlight the significant carbon and oxygen exchanges with the fuel used as well as bone organic matter (mainly collagen). While not informing on dietary practice and hydrology as is the case with unburned bone/soil, the carbon and oxygen isotope ratio of calcined samples together with infrared spectroscopy results provides information on conditions in which the bone was burned (e.g. presence of fuel, size of the pyre, temperatures reached, dry or fresh bone, etc.).

In contrast, the effect of burning on the strontium present in bone is minimal. Furthermore, as observed through artificial contamination experiments, post-burn alteration 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 calcined bone provides a reliable substrate for mobility studies using its strontium isotope composition. The results of this work greatly extend the application of strontium isotope to places and periods in which creation 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.
TH5-04 Abstract 02

First evidence of mobility levels from British Bronze Age cremations

Author - Dr. Appleby, University of Leicester, Leicester, United Kingdom (Presenting author)
Co-author(s) - Evans, Jane, British Geological Survey, Nottingham, United Kingdom

Cineraryurns 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 of cremations are essentially 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-excision permits an ordinate empty of the urn through an arbitrary division of its content in horizontal sections, from top to bottom, joined to an accurate graphic and photographic documentation. One of the limits of this method is the difficulty to fully understand the spatial relationships between the layers and materials contained in the urn and their alterations.

Multidiscetor CT (MDCT) permits a careful, non-destructive volumetric study of the whole content of the urn, keeping unchanged the spatial relationships between the layers. The differences of X-ray density of the layers and of the material contained in them permit to easily individuate the interfaces between them. Briefly, MDCT offers many advantages in respect to micro-excision from stratigraphic point of view, suggesting its utilization before any non-repeatable operation made on the urn. Our experience after MDCT scan on 40 cineraria from Neolithic to Roman age will be presented.
TH5-04 Abstract 07
Up in Flames: Animals, People, Identity and Cosmology in Anglo-Saxon East Anglia, UK

Author - Rainsford, Clare, University of Bradford, York, United Kingdom (Presenting author)

Presentation Preference - Poster

Abstract

Human and animal co-burials are a critical resource in zooarchaeology, presenting instances where a personal connection can be demonstrated between people and animals. Animal remains have been recognised in 5th to 7th century cremations in eastern England from an early date, and systematic analyses in the 80s and 90s of high-profile sites such as Spong Hill, Norfolk, have served to demonstrate the frequency, diversity and value of these inclusions. Yet the information from cremated animal remains is persistently under-exploited, due to difficulties on the one hand of accurate identification, and on the other of paucity 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 raw quality of the available data makes possible new and more detailed analyses of these complex, multi-faceted pyre goods. This paper will review new and existing evidence from early Anglo-Saxon cemeteries in East Anglia to explore how animals were used in funerary rites. Animals were a fundamental and ubiquitous part of early medieval society, providing a context for human action and perception and acting dynamically within that context. Their role in cremation rites is considered to be not simply symbolic, but as a complex interaction between identity, agency and cosmology.

TH5-04 Abstract 08
Cremation in the Scottish Chalcolithic

Author - Bloxam, Anna, UCL Institute of Archaeology, London, United Kingdom (Presenting author)

Keywords: Cremation, Cremation, Scotland

Presentation Preference - Poster

Abstract

The Chalcolithic of Britain (c.2450-2150 BC) was a period of dramatic cultural change, beginning with the arrival of Beaker material culture from continental Europe. Changes brought by the Beaker phenomenon included new forms of material culture, including the first use of metal, bringing an end to the insular Neolithic. This period also saw a shift in burial practices: cremation, common in the Late Neolithic, was replaced by a new rite of crouched individual inhumation, frequently accompanied by elements of the new Beaker material cultural package.

The changing mortuary evidence ties into a wider narrative of cultural replacement prompted by the arrival of the Beaker people and their culture. However, cremation re-emerged at the start of the Early Bronze Age, 300 years after its supposed disappearance. Was there really a 300-year hiatus in cremation practices in response to the Beaker cultural invasion? Or are we actually looking at a break in recorded evidence?

While some authors have noted the existence of occasional ‘Beaker’ cremations, these are typically glossed over or treated as anomalies. No comprehensive study has been carried out, and there is no characterisation of what the Chalcolithic cremation rite may have involved. The potential in radiocarbon dating of cremated remains has led to a wealth of new evidence that can shed light on Beaker period burial practices and the nature of indigenous-Beaker interactions.

This poster presents a new project aiming to characterise the burial practices of Beaker Period Britain, with a discussion of the initial results for evidence of mortuary diversity in Scotland.

TH5-04 Abstract 09
Advances in 14C dating of cremated bones

Author - Major, István, MTA ATOMKI, Debrecen, Hungary (Presenting author)

Keywords: dating, cremated bone, Bronze Age

Presentation Preference - Poster

Abstract

A compilation of 14C dates over the last 50 years shows that less than 6% of all the bone dates were performed on purified biocarbonate. 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 biocarbonate preparation and measuring method since in a lot of cases dating is only possible by means of such findings.

At HEKAL laboratory, Debrecen, Hungary, we have dated several hundreds of bone samples using their organic collagen fraction. As a next step we would like to adopt a method for 14 C dating of biocarbonate, 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 used dating the collagen fraction. In case of biocarbonate 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, counting the age of the three parallel biocarbonate samples, we proceeded to be the same, that to organic fraction a difference of 200-400 years was experienced presumably due to the chemical pre-treatment.

On this poster we would like to present both the evolution of our carbonate pre-treatment protocol and dating problems arisen in the case studies of the presentation entitled “Cremated Dating”? Case studies for the dating of Bronze Age cremation burials from Hungary.

TH5-04 Abstract 10
Excavator bias and laboratory techniques of cremation burials

Author - Mgr. Pálinkó, Edit, National Museum, Budapest, Hungary (Presenting author)

Keywords: cremation burials, excavator bias, laboratory techniques

Presentation Preference - Poster

Abstract

The aim of our research is to assess three methods of analysis of cremation burials: computer tomography (CT), micro-exavation; sieving of burial infill. We used eight burials from Jevikősi- Pédáshegyi sites (Hungary) 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 ‘oil’ burials, um burials and urn-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-exavation. When only CT is used, the precise bone identification is not possible, whereas during micro-exavation 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

Abstract

Cremation is a ritual treatment of the dead body that represents both a potential source of notices about the ancient historic societies and a real challenge for a physical anthropologist. With the introduction in the medical clinical practice of digital high-definition powerful radiological tools (MDCT, RM, QCT, CBCT etc.), is possible to carry out a non-destructive study of the cinerarium and its cremated remains in some way comparable with laboratory micro-exavation. Unfortunately, actual studies are based on a relative restricted number of cases, while the problems that we must solve are the correct interpretation of the images and the quantitative results need a large base of data and a effective share of the experience about it. PACS (Picture Archiving and Communication System) can be viewed as a corollary of the digitization of diagnostic medical images. Born in the eight decade of the last century to solve the problem of the radiological archives and to minimize the time of images. Born in the eight decade of the last century to solve the problem of the radiological archives and to minimize the time of
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 cannot be attributed to any of the groups.

The research focuses on human remains from Komarovo burial ground (the first half of the 6th – the first half of the 7th centuries). The excavations have been conducted since 2013. Currently, 21 cremated burials have been unearthed. These burials can be divided into three groups: human, animal and mixed burials. Four burials among them cannot 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 exceed 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 child. Other burials belonged to adults. The majority of them was 45-65 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 Komarovo burial ground will include the application of natural scientific methods, namely spectral analysis for defining human and non-human remains, histological bone structure analyses for age determining and the analysis of the 87Sr/86Sr ratio for migration processes in the local level.
PLAGUE IN DIACHRONIC AND INTERDISCIPLINARY PERSPECTIVE

Friday, 2 September 2016, 09:00-16:00
Faculty of History, Room SP1

Author: Guatamati Schümmerino, Doris, Universität Bonn, Vor- und Frühgeschichtliche Archäologie, Bonn, Germany (Presenting author)
Co-author(s): - Kacki, Sacha, Anthropologie des Populations Passées et Présentés, Université de Bordeaux, Pessac, France
Co-author(s): - Keller, Marcel, Max Planck Institute for the Science of Human History, Jena, Germany
Co-author(s): - Law, Christina, University of Nottingham, Nottingham, United Kingdom

Keywords: Diachronic perspective, Plague

Presentation Preference - Regular session

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 skeleton has recently shown that the plague first emerged at least as early as 3000 BC. Plague is, as any disease, both a biological as well as a social entity. Different disciplines can therefore elucidate different aspects of the plague, which can lead to a better understanding of this disease and its medical and social implications.

The session shall address questions like:

- Which disciplines can contribute to the research on the plague?
- What are their methodological possibilities and limitations?
- How can they work together in order to come to a more realistic and detailed picture of the plague in different times and regions?
- Which ways had societies to react to the plague? How can they be studied or proved?
- Which commons and differences can be seen between the Justinianic Plague and later plague epidemics?
- Are there epidemiological characteristics that are essential and/or unique to plague?
- What are possible implications of the pandemic spread and endemic occurrence of plague through the ages for the interpretation of historical and cultural phenomena?

We would like to invite researchers from the disciplines of archaeology, anthropology, biology, history, medicine and related subjects to present papers in our session.

TH5-05 Abstract 01
The Biology of Yersinia pestis and Plague in the 21st Century

Author: Dr. Lathem, Wyndham, Northwestern University, Chicago, United States of America (Presenting author)

Keywords: disease, epidemiology, 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.

TH5-05 Abstract 02
From Mild to Murderous: How Yersinia pestis Evolved to Cause Pneumonic Plague

Author: Dr. Lathem, Wyndham, Northwestern University, Chicago, United States of America (Presenting author)
Co-author(s): - Zimbler, Daniel, Northwestern University, Chicago, United States of America
Co-author(s): - Eddy, Justin, Northwestern University, Chicago, United States of America
Co-author(s): - Schroeder, Jay, Northwestern University, Chicago, United States of America
Co-author(s): - Ritzler, Jeramy, Northwestern University, Chicago, United States of America

Keywords: evolution, plague, pneumonic

Presentation Preference - Oral

How do new pathogens emerge, and how do these pathogens take advantage of host processes and pathways to cause disease? Yersinia pestis, the etiological agent of plague, is a recently emerged clone of the gastrointestinal pathogen Y. pseudotuberculosis, but the specific genetic changes that enabled Yersinia to cause the respiratory disease known as pneumonic plague are not well understood. By using a mouse model of respiratory infection combined with comparative genetic and genomic studies between Yersinia species, we have identified two specific events - the acquisition of the Pla protease and the inactivation of the YadA adhesin - as key steps in the emergence of Y. pestis as an easily transmissible, severe respiratory pathogen. The acquisition of the Pla protease enabled ancestral Y. pestis strains to grow to high levels in the lungs and cause a fulminant, multifocal severe pneumonia, while the loss of YadA shifted the respiratory infection from a restricted, granuloma-like pathology to a loosely contained, easily expelled state. Indeed, the loss of YadA by Y. pseudotuberculosis may have been a key step by which Y. pestis acquired the ability to be spread by respiratory droplets, thus enabling epidemics of pneumonic plague.

TH5-05 Abstract 03
Fleas, rats and other stories - The palaeoecology of the Black Death

Author: Panagiotakopulu, Eva, University of Edinburgh, Edinburgh, United Kingdom (Presenting author)

Keywords: fleas, palaeoecology, plague

Presentation Preference - Oral

Bubonic plague is a disease which involves various animal vectors and hosts and its ecology is both complex and of importance in terms of its spread and virulence. The origin of the Black Death is central to its better understanding and can throw light on the medieval pandemic and later epidemics. This paper discusses the ecology and biogeography of bubonic plague and looks into the natural history and palaeoecology relating to its vectors, primary and secondary. Xenopsylla cheopis and other flea species and hosts, the e.g. Anicerithri nitidus and Rattus rattus. The possible origins of the disease and its connection with the first urban centres of Egypt and Mesopotamia are discussed taking into account climatic, environmental and archaeological evidence. The hypothesis of the spread of the Black Death via trade links with Asia and Europe, in relation to the relevant archaeological record are also explored.

TH5-05 Abstract 04
Reconstructing ancient pathogens - discovery of Yersinia pestis in Eurasia 5,000 Years Ago

Author: PhD Rasmussen, Simon, Technical University of Denmark, Kgs. Lyngby, Denmark (Presenting author)
Co-author(s): - Allentoft, Morten, Center for Geogenetics, Copenhagen, Denmark
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Co-author(s): - Sjögren, Karl-Göran, University of Gothenburg, Gothenburg, Sweden
Co-author(s): - Kristiansen, Kristian, University of Gothenburg, Gothenburg, Sweden
Co-author(s): - Willerslev, Eske, Center for Geogenetics, Copenhagen, Denmark

Keywords: ancient DNA, paleogenomics, plague

Presentation Preference - Oral

The bacterium Yersinia pestis is the etiological agent of plague and has caused human pandemics with millions of deaths in historic times. How and when it originated remains contentious. Here, we report the oldest direct evidence of Yersinia pestis identified by ancient DNA in human teeth from Asia and Europe dating from 2,800 to 5,000 years ago. By sequencing the genomes, we find that these ancient plague strains are basal to all known Yersinia pestis. We find the origins of the Yersinia pestis lineage to be at least two times older than previous estimates. We also identify a temporal sequence of genetic changes that lead to increased virulence and the emergence of the bubonic plague. Our results show that plague infection was endemic in the human populations of Eurasia at least 3,000 years before any historical recordings of pandemics. Our findings open the possibility of identifying other old zoonotic pathogens directly from human remains (See S. Rasmussen, M. E. Allentoft, K. Nielsen, L. Orlando, M. Sikora, K.-G. Sjögren ... E. Willerslev (2015). Early Divergent Strains of Yersinia pestis in Eurasia 5,000 Years Ago. Cell, 163:571-582).

TH5-05 Abstract 05
Plague in the eastern Mediterranean region 1200-1000 BC?

Author: Prof. Wallaer, Lars, University of Oslo, Institute of Basic Medical Sciences, Department of Physiology, Oslo, Norway (Presenting author)

Keywords: demographic crises, Mycenae, plague

Presentation Preference - Oral
Over a period of 150 years from about 1200 BC, the Mycenaean states collapsed. The great Mycenaean centres did not decline slowly during this period, but suffered sudden destruction at the very peak of their prosperity. Five hypotheses have been proposed to explain the collapse: invasion, civil war, local risings, earthquakes and climate change. However, none of them seems to provide a satisfactory explanation of the existing archaeological material. At about the same time, similar disturbances and destruction also afflicted Cyprus, Syria and Anatolia, and the Hittite empire came to an end. The temporal and geographical distribution of these disasters and the subsequent course of events in the Aegean region show a strong similarity to developments in the European region following the two later pandemics of plague. In addition, there is strong documentary evidence that there was at least one epidemic of bubonic plague with high mortality in the eastern Mediterranean region at the relevant time. Recent analyses of Bronze Age DNA sequences resembling Yersinia pestis indicate that the infection was endemic in human populations, and that it acquired sufficient virulence to cause bubonic plague at some point in time between 1600 and 950 BC. L. Walz: Was the disruption of the Mycenaean world caused by repeated epidemics of bubonic plague? Oropoula Atthensia: 13-21, 2013.


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**TH5-05 Abstract 06**

**Plague before the Plague: Early Bubonic Plague in Greek Medical Literature**

*Author* - Mulhall, John, Harvard, Cambridge, Massachusetts, United States of America (Presenting author)

*Keywords*: bubonic plague, Greek medicine

*Presentation Preference*: Oral

In October 2015, Rasmussen et al. published evidence that Yersinia pestis was infecting human hosts in Western Eurasia as early as the Bronze Age. In the past, molecular evidence did not give historians a reason to doubt that Y. pestis was relatively new to Europe at the time of the Justinianic Plague. The new evidence that Y. pestis was active near the Mediterranean some 1,500 years before the Justinianic Plague therefore calls for a reevaluation of the evidence for plague in Antiquity before the Justinianic Plague.

This paper will report the conclusions of a close philological study aimed at uncovering what evidence there is for plague in the medical sources of antiquity, specifically, the Hippocratic Corpus, Rufus of Ephesus, and Galen. The picture that emerges from the medical sources is that Y. pestis was unknown to medical writers until around 541 CE, when the disease is first discussed by Rufus of Ephesus report a disease that resembles plague. The plague remains familiar to medical authors from the first century after the first century AD, when both Rufus and Aetius both describe the presence of plague. Intriguingly, Galen, who flourished in the mid second century, only a few generations after Rufus, does not show any awareness of bubonic plague. First, this paper will demonstrate that there is no compelling evidence of Y. pestis in the Hippocratic Corpus. While the term θύμος (thoumos) to describe glandular swellings appears twelve times in the Hippocratic Corpus, none of these twelve instances suggest that these boubōnes are plague boubes as opposed to other glandular swellings. A passage by Rufus of Ephesus that has been preserved in the Medical Collections of Oribasius 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 seems to provide a satisfactory explanation of the existing archaeological material. At about the same time, similar disturbances and the subsequent course of events 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. Walz: Was the disruption of the Mycenaean world caused by repeated epidemics of bubonic plague? Oropoula Atthensia: 13-21, 2013.


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**TH5-05 Abstract 08**

**Early medieval burials of plague victims: examples from Aschheim and Ailtenberg (Bavaria, Germany)**

*Author* - Dr. Gutsmiedl-Schumacher, Doris, Freie Universität Berlin, Berlin, Germany (Presenting author)

*Co-author(s)* - Harbeck, Michaela, Department of Anthropology, State Collection for Anthropology and Palaeoanatomy, Munich, Germany

*Co-author(s)* - Keller, Marcel, Department of Anthropology, State Collection for Anthropology and Palaeoanatomy, Munich, Germany

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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 Ailtenberg/Klettham, where the causative agent of plague, Yersinia pestis, could be detected palaeogenetically. The burials from the early medieval cemeteries of Aschheim-Bajuwarenring and Ailtenberg/Klettham show that plague victims have been dressed and prepared carefully for their funeral. Compared to other graves from these cemeteries on the one hand and to contemporary burials in general, nothing basically indicates that the Y. pestis infected individuals had been treated differently than other deceased. Among the buried who were infected with Y. pestis occurred some of the richest and most well-equipped graves of the cemeteries. Therefore, it cannot be proven on base of the Early Medieval plague graves of the Munch 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 burials is still in many cases necessary.

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**

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*Keywords*: ancient DNA, phylogenetics, plague of Justinian

*Presentation Preference*: Oral

The phylogenetic tree of the plague-causing pathogen Yersinia pestis has expanded in the last five years to include ancient draft genome sequences, which have allowed facets of the history of this disease to be explored in ways that were previously impossible. This pathogen has caused at least three human plague pandemics: the Plague of Justinian (6th-8th centuries), the Black Death (1347-1352), and the modern pandemic (19th-20th centuries), which have all been genetically characterized. Here we present the draft genomes obtained from two individuals who died in the first pandemic that allowed for genetic characterization of this pandemic. On the basis of maximum likelihood phylogenetic analyses, we conclude that the Y. pestis images that caused the Plague of Justinian and the Black Death 800 years later were independent emergences from rodent reservoirs into humans. These results show that rodent species worldwide represent important reservoirs for the repeated emergence of diverse lineages of Y. pestis into human populations. In contrast, recently published Y. pestis sequences from the 18th century plague outbreak in Marseille, France do show ancestry in the strains obtained from Black Death victims, but are not represented in any sampled modern lineages. Taken in concert, the phylogenetics of ancient pandemic Y. pestis genomes reveal that the geographical spread of the disease and subsequent establishment of rodent reservoirs varied between pandemics.
PLague in Valencia, 546: A Case Study of the Integration of Texts and Archaeology

The Justinianic Plague, which started in the 6th century and lasted to the mid-8th century, is the first out of at least three historically documented pandemics caused by Yersinia pestis. Although the plague in the Eastern Roman Empire is the most studied, the Justinianic Plague is particularly interesting due to the transition from the Antique to the Middle Ages. The epidemic started in the early 540s and dramatically altered the history of the Eastern Empire, marking the transition from the Antique to the Middle Ages. Historical accounts as well as molecular data suggest the gram negative bacterium Yersinia pestis (Y. pestis) as the etiological agent of this massive plague outbreak. Here we present a high coverage Y. pestis genome, obtained from a 6th century skeleton recovered from a Southern German graveyard close to Munich. The reconstructed ancient Y. pestis genome is characterized by substitutions that are unique to this lineage, and structural differences in regions of the genome that have been previously suggested as virulence factors. These results may be influential for functional investigations that could explore the role of these newly discovered genomic characteristics in terms of physiology, virulence and host adaptation. We confirm Y. pestis was circulating in mainland Europe during the Justinianic pandemic and that this lineage is likely to have become extinct, as previously published based on a draft Y. pestis genome from the same time period and similar geographic origin. Comparative analysis of the two Y. pestis genomes suggests a rapid spread of the plague during the 6th century in Southern Germany.

Understanding Black Death: News from Denmark

The mid-14th century Black Death epidemic reverberated across Europe, having significant impacts on the population which shaped social, economic, and political dynamics in the years to come, and leaving its selective mark on the surviving populations from a genetic standpoint. The epidemic has since captured the attention of an interdisciplinary following of researchers, with core interests in the social and biological impacts and the disease etiology, amongst other areas. It is estimated that up to 50% of the population was lost over the course of the epidemic in Denmark, but up until now little bioarchaeological or molecular work has been done on the disease in Denmark. As an acute infection, the Black Death epidemic left no diagnostic anatomical signs on the skeletal remains of medieval populations. Thus far, our understanding of the disease 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 epidemiological crises in recorded history is still an incredibly contentious subject, and our understanding of the circumstances affecting the health of populations around the period of the Black Death epidemic is limited. Yersinia pestis has been identified in Black Death cemeteries in Europe, but thus far no published work is available from Denmark. By building a better understanding of the pathogen load of the populations in Denmark at the time of the Black Death crisis, as well as both before and after the epidemic, it will be possible to attain a better understanding of the role Yersinia pestis may have played in the population, and of the immune changes and responses to the epidemic. The current paper presents preliminary results from an international team combining bioarchaeological and molecular methods to gain a better understanding of the epidemiological pattern surrounding the Black Death epidemic in Denmark.

Germany and the Black Death: a zoarchaeological approach

Zooarchaeology is the study of faunal remains from archaeological sites. Animal bones can be used to track changes e.g. in herd composition, size or animal health. Significant changes in size over short periods of time are a testimony of the human influence upon their livestock. An increase in size can be triggered through food of higher quality, improvement of keeping conditions, but also through the import of new breeds from areas with specialized animal breeding. A decrease of size on the other hand is interpreted as deterioration caused not only by exogenous factors such as climatic shift and epizootic diseases, but also by societal and demographic changes. A problem in zooarchaeological evidence can therefore revolve around non-documentation of specific aspects. In the first half of the 14th century AD several devastating events affected great parts of Europe, leading to a gradual transformation of human society. The instability and unpredictability of the climate was the main cause of successive famines between 1315 and 1317, resulting in the loss of many lives. At the same time epizootics among cattle and sheep causing massive casualties across Central and Northern Europe must have had a great impact on the human nutrition. In the mid of the 14th century the Black Death (1347-1352) hit the European continent, causing long-term social and economic changes. The focus of the present paper is on German Late-Medieval and Regensburg archaeological sites. In two particular finding sites, the zooarchaeological evidence suggests that the Black Death had a negative impact on domestic livestock, especially on cattle. In addition supra-regional studies reveal that the impact differed not only between geographical localities, but also between settlement types.
One of the most devastating events in human history was the second plague pandemic, which began with the Black Death (1347-1353). Sporadic outbreaks of plague continued in Europe until the 18th century, when the disease essentially disappeared. Initial sequencing of Yersinia pestis genomes from London victims of the second plague pandemic, identified the Black Death as the event that gave rise to most of the Y. pestis genetic diversity present around the world today. This result raised further interest regarding the relationship of this lineage to the ones associated with post-Black Death outbreaks, and to modern plague lineages. Recent 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 an ancient European plague lineage that is now likely extinct.

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 an ancient European plague lineage that is now likely extinct.

There is tremendous variation in the proposed routes of historical plague due to the sparseness and ambiguity of mortality records. In addition, the majority of these contemporaneous sources are non-specific with regards to the cause of death. To address these limitations, genetic data from ancient pathogens provides a unique line of evidence for identifying and mapping the spread of disease. Ancient DNA (aDNA) in combination with archival documents stands to contribute a novel perspective by focusing the analytical lens on the bacterium Yersinia pestis, the etiological agent itself. This study aims to critically examine how aDNA and the evolution of Y. pestis can be used to reconstruct the movement of plague in medieval Europe. An exploration of the strengths and weaknesses of genomic research will serve to evaluate how aDNA of Y. pestis can contribute to a holistic framework of plague research, in which both the human and bacterial components are examined. Ultimately this research will assess to what extent archival-based models and molecular reconstructions of plague provide complementary or contrasting narratives of disease spread. The identification of key questions that can be suitably addressed through the evolution of ancient pathogens will serve to conclusively highlight the collaborative potential of interdisciplinary plague research.
Exploring the subsoil of the wide area of Mont'e Prama
(Cabras, Sardinia, Italy)

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Keywords: Mont'e Prama, Multichannel GPR, Wide Area Prospection
Presentation Preference - Oral

40 years ago, an archaeological discovery occurred by chance in the Mont'e Prama region situated near the village of Cabras, in the 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, baetules of very great dimension, models of naves and almost intact stone statues.

An 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 baetules, showed characteristics anomalies that are repetitive all over the excavated area.

Starting from these remarks, 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 analysis of the GPR data initially shows that the main kind of anomalies are flatter anomalies closely similar to those observed in association to tombs in the excavated area. As in the excavated area, these kind of anomalies are aligned along linear paths in NNE-SSW direction. These alignments are very extended both northward and southward with respect to the known archaeological area.

Some others anomalies, scattered over the investigated area, display shapes very similar to those from baetules.

Another frequent pattern was also recognized but without direct correspondence to those from the dug area. The new anomalies detected in the surrounding areas show size of some metres. Without a direct link to excavated remains, it is difficult to have 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.

This kind of approach allowed us to tentatively extend the interpretation of GPR data in 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.
This paper presents the preliminary results (and challenges) of a remote sensing research project focused on early medieval land use and communities in a number of case study areas in Ireland. Exploring the wealth of contemporary documentary evidence, the project utilizes lidar survey to examine the wider landscape, integrating it with targeted geophysical survey to investigate key sites and their relationship with their neighbouring settlements.

- Th5-06 Abstract 08
Revaluating the landscape of Lesser Poland. Love, hate and “vicious circles” of noninvasive methods
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Keywords: aerial archaeology, field walking, geophysical prospection
Presentation Preference - Oral
The presentation will deal with the methodological approaches and preliminary results of the “Hidden Cultural Landscapes of the Lesser Poland Upland” project. The project’s study area is an area extremely abundant in ancient settlements. This complex period has been subject of many (settlement) surveys in prior years but has never been covered by a macroregional non-destructive (remote sensing, geophysical) study. The project is enthusiastically oriented towards existing Archaeological Record of Poland (AZP, a nation-wide archaeological mapping programme based on the sole application of field-walking) results as a valuable source of complementary (historical-cultural) data that may be an important corrective factor in a holistic interpretation of acquired non-invasive datasets. Despite this general eagerness it needs to be noted that data derived from the AZP programme requires a critical approach. AZP remains unfortunately resilient to attempts of modernization, both from a theoretical and practical perspective, where the perceived limitations of other (usually non-invasive) techniques forsake the need for change (e.g. aerial prospection as described in: Raczkowski 2005, Tradition in Power: Vicious circle(s) of aerial survey in Poland).

Non-invasive techniques in Poland are viewed as pre-excavation prospection tools and in this manner are generally accepted by the archaeological milieu. This approach based on the practical needs of the (traditional) cultural-historical paradigm pigeonholes such techniques like geophysics or remote sensing solely as prospection methods and denies them the position of fully fledged, though alternative, research tools enabling the study of past landscapes and societies.

A multitude of recent archaeological landscape projects that have taken place in Europe show that such pigeonholing is a definite sign of underused potential. Landscape studies take into account data from territorial units unfaithful even to rescue excavations, allowing the study of large spatial structures within macro-regional contexts. They also deal with important (cultural) activities that do not manifest in clear physical forms. Indeed, non-destructive methods mostly fail at procuring material culture and chronological evidence, however they excel in the recognition of cultural features not definable by traditional approaches and also shed new light on heavily researched subjects, often dramatically changing their interpretation.

The integration of new methods and approaches is a topic of a long and heavily polarised national debate with a growing group of strong proponents and even more opponents. It is focused on the justification of non-invasive techniques in archaeology. Main arguments “against” revolve around pointing out that lack of chronological data makes excavations necessary anyway, therefore making i.e. geophysics a costly extravagance, draining funding from “real archaeology”. Not enough is put into exploring the extremely convenient situation where (cultural-historical) AZP readily available data can be combined, compared and evaluated with new non-invasive datasets, potentially bypassing limitations and complementing both approaches. This subject will be the focus of the presentation of the “Hidden Cultural Landscapes of the Lesser Poland Upland” project.

- Th5-06 Abstract 09
Discovering a ‘new’ late Iron and Viking Age landscape along Varde Stream using aerial archaeology
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Keywords: aerial archaeology, Late Iron Age and Viking Age settlement, Reevaluating past landscapes
Presentation Preference - Oral
A recent aerial archaeological effort in Denmark – Aerial view of the past (translation) – has provided registrations of a number of new sites. These new sites have changed, and continue to change, the understanding of past landscapes. In this paper, I will present an example from the Varde Stream area in northern Denmark. Aerial archaeology aims to identify new features, advanced remote sensing techniques have helped us to engage with early medieval society at a more localised community level.

This paper presents the preliminary results (and challenges) of a remote sensing research project focused on early medieval land use and communities in a number of case study areas in Ireland. Exploring the wealth of contemporary documentary evidence, the project utilises lidar survey to examine the wider landscape, integrating it with targeted geophysical survey to investigate key sites and their relationship with their neighbouring settlements.

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 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

keywords: Integration, Landscape Archaeology, Remote Sensing
Presentation Preference - Oral
One interesting feature of the 15 settlements along the Varde Stream system mainly links to an almost preplanned structure. The settlements are situated along the stream with approximately 1 km of distance between each other. This particular situation offers considerably from other areas in West Jutland where the settlements are situated more sparsely. The Varde Stream system settlements are located mainly on the north side of the meadows that runs along the stream and allows for a utilization of both the meadows and easy access to Ho Bay and the Wadden Sea. The settlements are registered mainly as pit-house cropmarks, and a few display longhouses in combination with pit-houses. The pit-house is the common element, a feature that often is connected with crafts. The spatial location along the stream 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 indication indicate a normalized resource area? Do the pit-house sites indicate settlements or do the sites represent a specialized function? These questions are of great importance for this particular period in the Danish prehistory, where it is theorized that the early steps towards state formation occur. These processes are often linked to the central places and the power we surmise they must have had due to exceptional material culture. New, due to the aerial archaeological data, it might be possible to contribute to, or deconstruct, these assumptions.

TH5-06 Abstract 10
The 16th century In Depth Defenses of the Nissar River Valley Revealed by Remote Sensing
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Keywords: 16th century warfare, LIDAR, Remote sensing
Presentation Preference - Oral

In the late autumn of 1567, during the Nordic Seven Years War, a large Danish army crossed the border and marched into southern Sweden, wreaking havoc on the lands of the enemy. The outnumbered defenders were unable to offer any serious resistance for about a week, thus giving the invasion force free access to the Nissar River Valley – one of the main roads to central Sweden. From Aarö to Fargna, the following year the extent of the catastrophe can be estimated. A whole region was devastated, its villages and farms appear as “plundered”, “burned”, “destroyed” or “laid waste” in the written sources.

However, this could have been avoided. A well planned system for defense in depth was established before the war. Both the Swedish and the Danish forces had been built in strategic positions along the river valley at a distance of about one days march from each other. Used correctly, these simple fortifications would have slowed down an invader, wasting his strength while giving the defenders time to gather reinforcements. But due to a number of circumstances this did not happen in 1567. Instead the unexpected defeat got in harm’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, LIDAR and GPR it has been possible to trace both the preparations made by the defenders in time to gather reinforcements. But due to a number of circumstances this did not happen in 1567. Instead the unexpected defeat got in harm’s way.

The settlements are situated along the stream with approximately 1 km of distance between each other. This particular situation offers considerably from other areas in West Jutland where the settlements are situated more sparsely. The Varde Stream system settlements are located mainly on the north side of the meadows that runs along the stream and allows for a utilization of both the meadows and easy access to Ho Bay and the Wadden Sea. The settlements are registered mainly as pit-house cropmarks, and a few display longhouses in combination with pit-houses. The pit-house is the common element, a feature that often is connected with crafts. The spatial location along the stream 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 indication indicate a normalized resource area? Do the pit-house sites indicate settlements or do the sites represent a specialized function? These questions are of great importance for this particular period in the Danish prehistory, where it is theorized that the early steps towards state formation occur. These processes are often linked to the central places and the power we surmise they must have had due to exceptional material culture. New, due to the aerial archaeological data, it might be possible to contribute to, or deconstruct, these assumptions.

TH5-06 Abstract 12
3D Photogrammetry/Videogrammetry in Underwater and Aerial Archaeology
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Keywords: 3D Reconstruction, Structure from Motion, Videogrammetry
Presentation Preference - Oral

Over the past few years, 3D reconstruction from images series (photogrammetry) or video streams (videogrammetry), using robust and fast software tools such as Structure from Motion (SfM) and Multi-View Stereo (MVS), has emerged as a dominant technique in archaeology. The usefulness of these tools is not limited to capturing digital models of single objects or (in combination with high resolution 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 both archaeological research in flat areas and coastal transition zones that currently constitute some of the most sparsely documented regions of archaeological interest. However, as the volumes of 3D data increase, best-practise and efficient workflows move into focus, as do staff training and access to low-cost, low-cost technology. Traditionally working under constraints of strictly limited time and financial resources, archaeologists are now facing the problem of 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 in high-resolution, low-cost and high-speed.
Since such exceptional findings have high scientific potential it is of great interest for an interdisciplinary project. Photogrammetry and 3D scanning were used as the documentation method at the excavation and allowed quick and detailed drawings of scaled plans. To keep the contamination of human remains as low as possible the excavators used various protection equipment.

The human remains are morphologically analysed, the minimal number of individuals is calculated, stable isotope analyses of the isotopes carbon, nitrogen, sulphur, oxygen, hydrogen, strontium and lead will be performed in order to investigate the dietary habits, possible migration patterns and climatic conditions of this time. Furthermore, the ancient DNA will be investigated for population genetics and also to gather information about phenotype and genetic relationships.

Radiocarbon dating will be performed to shed light on the chronology of the burials. First radiocarbon dates indicate that the dolmen was used from around the second half of the 4th millennium BC. This falls within the two big migration and admiring events of Neolithic Europe. So far little is known about the people at the time of the dolmen. Additionally the geography in the alpine region makes it an important source for migration studies since migration routes are limited in the alpine region.

**TH5-06 Abstract 14**

**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, Neolithic namely) landscapes in this area of some 274 km². The approach of surveying for new sites has been employed by means of GIS and LiDAR modeling as well as actual excavations. Here we present primary results of this endeavor as well as shortcomings of GIS and LiDAR modeling if it isn’t used together with an actual archaeological fieldwork.

**TH5-06 Abstract 15**

**Unique burials found in the ancient necropolises in Crimea with the magnetic survey in 2014-2015**

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**Keywords** - late Scythians, burial items, gold jewelry, magnetic survey, North-Western Crimea, ancient necropolis

**Presentation Preference** - Poster

Excavations of the necropolises are extremely important for understanding the synchronous with the graves historical processes. The funerary objects, visible on the surface, in most cases repeatedly robbed. Situation with underground cemeteries, which are not visible on the surface, is different. Although they, too, went looting extensively in Crimea, but the visibility 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 selection 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 Don-Baba studied three not robbed ground children’s graves with a variety of implements and unique family stone crypt with numerous graves of 1 c. BC. It was found numerous burial items, among which glass, pottery red lacquer and, stucco 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. It also 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 (preklast). With her, perhaps, connected the specific cult vessels - stucco incense burners, large non-Black Sea sink, numerous gold objects pointing dressing, pendants, rings. Another not robbed crypt was discovered in the necropolis of the ancient settlement Kutchuk.

In the chamber of the crypt detected & 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 overlayer 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 cleaning the space for the next burial. Accompanied the deceased burial items presented with beads, simple, red lacquer and stucco pottery, iron knives, rare types of fibulas, arrowheads, lead rings, pendant made of yellow metal, moon-shaped amulet, plaques and belt details. The investigated crypt was probably used during the second half of 1 c. BC - first half of 1 c. AD and refers to the late Scythian archaeological culture.

**Work was carried out by the grant RFBR № 14-06-90403 “Study of underground ancient necropolises of the Western and Eastern Crimea with the help of magnetic survey”.

**TH5-06 Abstract 17**

**Identifying and Evaluating Neolithic Sites in Italy**

**Using Aerial- and Ground-Based Remote Sensing**

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**Keywords** - early agriculture, remote sensing, Tavoliere

**Presentation Preference** - Poster

The Tavoliere of northern Puglia (southern Italy) was a dense area of early agricultural settlements in the Neolithic (ca. 6000-4000 BC) of western Europe and was, probably, the point of introduction into Western Europe of farming. Several hundred sites with ditched enclosures were initially identified from aerial reconnaissance photography following WWII, with more than 800 locations in an area of several hundred square kilometers. Starting in 2013, we have conducted walking surveys of more than 25 sites, collecting about 1270 ceramic artifacts as well as many obsidian and flint tools, and 70 clay samples from nearby watercourses. These have all been analyzed using a portable X-ray fluorescence spectrometer, specifically for trace elements, with clear groupings of ceramics (which include non-diagnostic coarse wares, Impressied Wares, parallel and medium coarse, and medium fine wares, Masseria La Quercia wares and Passo di Corvo fine wares) and a suggestion of some south-to-north movements. Most of the obsidian comes from the Aeolian island of Lipari (about 330 km to the south), and about 10% from Palmarola (about 230 km...
Geophysical and Archaeological research
on Late Roman iron-smelting site at Virje (Croatia)

Author: Medarić, Igor, Gearh d.o.o., Ljubljana, Slovenia (presenting author)
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Abstract

Archaeological site Virje is situated in the Croatian lowland, on the right bank of the upper course of Drava river. On a slightly sloped area named Sušine, parts of a primary iron processing smelting workshops were discovered and explored. Since these types of sites are quite rare in northern parts of Croatia, and in order to get a better understanding of the development of the site, noninvasive methods were applied. With the help of magnetic method, measurements of magnetic susceptibility and shallow drilling, waste disposals of a workshop, few pit furnaces from the Late Roman period (4th and 5th century), as well as settlement remains from Late Iron Age (3rd 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.

FOOD FOR THOUGHT
INTERDISCIPLINARY RESPONSES TO DIETARY STUDIES
IN BIOARCHAEOLOGICAL RESEARCH

Saturday, 3 September 2016, 14:00-18:30
Faculty of History, Room 218

Food is a central aspect of human society. Furthermore, because of rising issues regarding destructive sampling on bone and teeth, the possibilities and benefits of non-destructive methods, such as the study of dental calculus or the use of x-ray, as a proxy for invasive paleodietary analyses, have been acknowledged by researchers. As it has become increasingly necessary to adopt a diverse approach to archaeological research, this session is designed to showcase the innovative and interdisciplinary nature of new investigations into diet (and its effect) in the past, and suggestions for topics include:

- multiproxy approaches to dietary reconstruction in Anglo-Saxon to Medieval UK
- interdisciplinary techniques in their research to deal with the concepts of diet, health and disease.
- non-destructive methods, such as the study of dental calculus or the use of x-ray, as a proxy for invasive paleodietary analyses.
- multilevel approaches to dietary reconstruction in Anglo-Saxon to Medieval UK
- the effects of natural disasters on health (e.g. famines and epidemics caused by crop failure, climate change, etc.)
- zoonoses and human animal interaction
- rural vs. urban health
- the integration of modern methods in order to reveal dietary patterns of past individuals has improved significantly in recent years.

- skeletal remains unearthed from archaeological sites are one of the few direct testimonies which offer us the opportunity to gain insight into past people’s lives. A substantial part of a person’s life course relates to diet and nutrition, since it reflects important cultural and social behaviors. This session will explore how archaeologists, human osteologists and historians implement interdisciplinary techniques in their research to deal with the concepts of diet, health and disease. The integration of modern methods in order to reveal dietary patterns of past individuals has improved significantly in recent years.

- interdisciplinary approaches, such as combining knowledge of bone chemistry with paleopathological analysis, have been developed to investigate the relationship between diet and disease and the connection between health and different aspects of society. Furthermore, because of rising issues regarding destructive sampling on bone and teeth, the possibilities and benefits of non-destructive methods, such as the study of dental calculus or the use of x-ray, as a proxy for invasive paleodietary analyses, have been acknowledged by researchers.

- As it has become increasingly necessary to adopt a diverse approach to archaeological research, this session is designed to showcase the innovative and interdisciplinary nature of new investigations into diet (and its effect) in the past, and suggestions for topics include:

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- non-destructive methods, such as the study of dental calculus or the use of x-ray, as a proxy for invasive paleodietary analyses.
theoretical basis for elemental analysis of human bone to study diet and mobility is well-established, yet until recently the identification by age and sex. These agriculturalists enjoyed a complex diet that encompassed grain, vegetables, fruit, and meat, and meat (crocodile, pig, and fish). Dental calculus analysis for approximately 50% of these individuals provides a dietary proxy which was rare. Approximately 10% of the individuals yielded coprolites, which were examined for pollen, phytoliths, macrofloral remains, and faunal bone. The resulting dietary record was compared across males and females and by age group for both components of the diet and dietary bias. Diet included a grain (sorghum), multiple vegetables and fruits indicating agriculture, as well as fish (crocodile, pig, and fish). Dental calculus analysis for approximately 50% of these individuals provides a dietary proxy to compare with that of the coprolites. As expected, the dental calculus record is severely limited in breadth. Comparison of these records by individual highlights those differences. Nutritional assessment of the diet included observations concerning iron, with emphasis on bio-availability. For instance, phytates, abundant in sorghum grains, inhibit iron absorption. HPE gene mutation represents iron in bodily tissues rather than eliminating it (hemachromatosis). Ancient DNA analysis that will include mapping the two alleles associated with this gene mutation is in progress. XRF analysis of dried human blood has detected elemental iron, suggesting this technique might provide preliminary data to assess relative iron loads in the tissues. First tier testing focuses on those skeletons and directly affiliated bodies from which coprolites were recovered. This analysis is ongoing and results will be reported. In conclusion, this multi-disciplinary study compares human osteological remains with dietary and nutritional studies that derive from coprolites and dental calculus. The dietary information is specific to individual, most of whom have been identified by age and sex. These agriculturalists enjoyed a complex diet that encompassed grain, vegetables, fruit, and meat, some of which was represented in the dental calculus. This study forms a part of this larger investigation into the Celtic Curse (Hemochromatosis). Today, northern Europeans (and those of northern European descent) carry the majority of the genes for hemochromatosis. This, and other studies of similar nature, cross the boundaries of scientific study to link genetics, human osteology, diet, and nutrition. We used coprolite and dental calculus to identify and evaluate the diet of individuals buried in two Early and Late Christian cemeteries.

The theoretical basis for elemental analysis of human diet and mobility is well-established, yet until recently the number of studies done is few and far between. Instead, analyses of carbon, nitrogen, oxygen, and strontium isotope analysis have dominated “bone chemistry” studies over the last 25 years. Nevertheless, elemental analysis of calcium (Ca), iron (Fe), barium (Ba), strontium (Sr), lead (Pb), zinc (Zn), arsenic (As) and other elements can support and supplement isotope-based interpretations, and be of significant use in cases where bone collagen is not preserved. Elemental analysis, however, has potentially greater concerns than isotope studies, due to degradation and contamination of the mineral portion of bone. Also, most previous elemental studies have been just as destructive, with samples well-cleaned, ashed, and put into solution for analysis by ICP spectrometry. Over the last decade, however, non-destructive desk-top and portable (hand-held) X-ray fluorescence (XRF) spectrometers have become widely available to archaeologists. While now regularly used for trace element analysis of obsidian and other lithics, and major element composition of metals, it appears potentially useful for studies of skeletal remains as well. In the United States and other destructive isotope analyses of skeletal remains has become increasingly difficult, and for that reason experimental studies have been conducted using the pXRF on its precision and the heterogeneity of bone surfaces versus interior, along with analyses on more than 1000 individuals from archaeological sites in Europe and the Americas. One of the studies done was on individuals from inland and coastal sites in Florida. The small amounts of variability among individuals at each site suggest little contamination, while the clear differences between the sites are most likely due to varying proportions of seafood in the diet. This was followed by analyses of many individuals from sites in Argentina, Belize, Bolivia, Brazil, Chile, Colombia, Italy, Peru, and Portugal, most of whom were also analyzed isotopically and with interpretations made about the dietary importance of maize, millet, and aquatic resources with patterns based on sex and status. Overall, the precision of the pXRF on most elements of interest is excellent; a separate issue however is the calibration of the raw data produced and whether the results may be compared with studies done by ICP spectrometry. Further studies are being conducted on tooth enamel and roots, to test whether non-destructive analysis may be reliable for assessing childhood diets. The reliability and utility of this method of elemental analysis of skeletal remains to study ancient diets will be discussed.
The Megalithic tomb of La Mina (Alcubilla de las Peñas, Soria), dating to 3890–3660 BC, is unique among the passage graves of the Iberian Peninsula. After the communal burial chamber had been sealed, the structure was dismantled, dismantled and monumentalized, thus becoming both a ceremonial site and territorial landmark. The tomb and its architectural facade 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 (N=92) were commingled and highly fragmented due to the postdepositional 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. In La Mina, it becomes apparent that the life courses as well as the social status of the individuals had an impact on the decision whether or not someone was to be buried in the communal megalithic chamber. Different demographic profiles emerge for the women and men buried there, hinting at separate social roles between the sexes. There is evidence that individual health or resilience after severe trauma might also have had an influence on the selection. Especially interesting are the distinct patterns of deficiency as well as the traces of infectious diseases which again vary between the sexes. The combined study of the demographic profile, pathologies, aDNA and the dietary data obtained in an ongoing stable isotope analysis will allow unique insights into the life histories and the health status of the individuals 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 06
A Relationship between Diet and Burial Rite at Neolithic Osłonki 1: d13C and d15N studies
Author - Dr. Budd, Chelsea, Bunrwood, United Kingdom (Presenting author)
Co-author(s) - Bogucki, Peter, Princeton University, New Jersey, United States of America
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 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 (Komlos, 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 organized gender-related inequality potentially meant a disregard of the female part of the population (Horrell, Meadow & Ossel, 2009). Female discrimination can result in either immediate feminicide after birth (George, 2006; Klasen & Wink, 2002; Olds, 2006) or in the general neglect of girls on different levels (public endowments, household allocations) concerning diet and health; correspondingly it can result in a diminishing nutritional status between females and their male contemporaries during their growth years. If significant this affects height dimorphism and health disparities later in life (Bogn, 1999; Ewalt & Tanner, 1978; Frongillo & Begin, 1993; Harris, G, Greve & Machado, 2009; Moradi & Guntupalli, 2009; 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; Damas & 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 from the 8th century BCE to 14th century CE. I will show that employment differences in the ratio of male to female individuals survived until adulthood (measuring the female deficit) as well as the variation in relative dimorphism of male to female height (measuring possible net nutrition discrepancies), and its potential inter-generational legacy.

TH5-07 Abstract 08
Gender and diet: experimental study in bioanthropology (the case of the cemetery of Larina, France)
Author - Batista-Goulart, Luana, CEPAM - Université de Nice Sophia Antipolis, Nice, France (Presenting author)
Co-author(s) - Séguy, Isabelle, 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 quality 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 (Hêres-sur-Amby, Isère, France; 6th–8th centuries A.D); and (2) to reclaim a place for women in the past and to better know their role in this society.

To conduct this study we analyze dental microwear from a sample of exhumed skeletons. During the mastication, different types of food leave different kind of marks on the teeth's surface. Microwear analysis method has been used in a previous research to compare the diet of two different social groups from the Larina site, but not to compare the two genders. Subsequently, our
research compares the microwear found on women and men’s teeth in order to infer if they had eaten the same kind of food. This study is currently being conducted, and we will present its first results in the conference.

**TH5-07 Abstract 09**

**Fish ’n’ Picts: Reconstructing diet in early Medieval Scotland using stable isotope analysis**

**Author:** Kate, Britton, Aberdeen, United Kingdom (Presenting author)

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**Keywords:** early medieval, Picts, Stable isotopes

**Presentation Preference:** Oral

First mentioned in late Roman writings as troublesome tribal groupings north of the Roman frontier, the Picts went on to become the first kingdoms in eastern Scotland in the post-Roman period. Although current archaeological investigations are unearthing important new information about the Picts, many aspects of the Pictish past remain elusive. Given the dearth of historical sources and current lack of Pictish domestic sites and animal bone assemblages, very little is known about many economic and social aspects of Pictish lives – such as diet. The stable isotope analysis of bone collagen is useful as a means of assessing past dietary habits, particularly the relative contribution of marine and terrestrial protein to the diet. These techniques also have the potential to investigate dietary variations within groups, such as between different biological sexes or burial types.

We present carbon and nitrogen isotope data from bone collagen from a number of Pictish burials and cemeteries, providing new insights into Pictish lifeways. Data generated are compared to limited previously-published Pictish datasets and to data from other contemporary archaeological British groups. Results suggest limited intra-group dietary variability, and a relatively homogenous diet across the areas studied. Marine fish consumption is low relative to later Medieval and Viking sites in Scotland, and in comparison to contemporary Romano-British samples, but similar to data derived from Anglo-Saxon sites. The conceptual role and importance of fish, rivers and other water bodies to the Picts is also briefly explored (particularly with regards to the positioning of cemetery sites, and the depiction of fish on Class I stones).

**TH5-07 Abstract 10**

**Regional differences in subsistence economy in 16-19th c.c. Lithuania: stable isotope evidence**

**Author:** Skiptyski, Raminta, Nature research centre, Vilnius, Lithuania (Presenting author)

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- Lidén, Kerstin, Stockholm University, Stockholm, Sweden
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**Keywords:** diet, stable isotope

**Presentation Preference:** Oral

Stable isotope analysis now is a “golden standard” for studying variations in the past diet and life history. Previous studies performed in medieval Lithuania have shown that the human protein intake was mostly derived from C3 plants and C3 feeding animals and possibly some freshwater resources with little variation among young and adult individuals (Whitmore et al., 2014). In this study, stable isotope analysis of human skeletons from different populations representing various regions of Lithuania (16-19th c.c.) was performed. To track dietary evidences, animal bone samples from similar places and time period were analysed as well.

The results showed significant differences in stable nitrogen isotope ratios between coastal, urban and inland site communities, meanwhile, the carbon stable isotope ratios were less variable and showed a strong dependence on the C3 plant environment. Different strategies in subsistence economy could shape the stable isotope signals in these communities. Peasants in the countryside were able to farm their land and to be self-sufficient, while living in urbanized territories was quite different. Open markets and food supply from the outside enabled people to live out from other activities. Coastal community was characterized by the higher freshwater fish consumption. The availability of the food sources was much more restricted in the past compared with the modern time global supply.

It was already determined in numerous literature sources that stable isotope ratios can differ according to the certain environment (e.g. terrestrial vs marine), therefore another aim of our study is confirmation of the possibility of allocating human remains to a particular site according to their stable isotope ratios.
Food poverty in the UK is currently on the rise and reports from public health expenditure highlights both the cost of this problem to the public and the impact that poor diet can have on the social and physical aspects of peoples lives. There are many disciplines which can be used to examine the effect of food poverty on the British population, but the three involved in this research are: nutritional epidemiology, history, and archaeology. Each of these subjects has its strengths and weaknesses. The latter two have attempted to understand the historical problem of food poverty which is still so prevalent today.

Nutritional epidemiology is concerned with the nutritional quality of a population’s health, and is often involved in providing guidelines for public health policies. Concerned only with the past, but more focussed on the present, nutritional epidemiology is a method for examining modern food poverty. Contrary to this, history only reveals information about past public health through records of the time, such as poverty surveys and government policy records. Evidence for poverty in the archaeological record can be found using landscape archaeology, the archaeology of buildings, and osteoarchaeology.

Although the approaches are very different, all three disciplines often have data about populations rather than individuals. Whilst nutritional epidemiology relies on the geographical or social aspects of individuals to define these groups, when working in archaeology it is possible to define groups by historical periods as well as the geographical location of the buried site and other social, cultural and economic 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.
TH5-10 Abstract 03

Building in the detail: micro-stratigraphies of Neolithic structures at the Ness of Brodgar, Orkney

Author - Dr. McNabie, J., University of Bradford, Bradford, United Kingdom (Presenting author)

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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 two very different approaches to sampling, the resulting micromorphological sequences highlight the importance of detailed integration not only with excavation strategy, but also supporting geoarchaeological and environmental techniques. Structure 1 shows a very detailed and clearly defined sequence of interior deposits which provide a unique insight into the complex biography of a building which saw extensive remodelling through time. Here, the micromorphological sample set examines an extensive vertical sequence of in-situ deposits adjacent to the central point of the structure and its large monumental hearth. These span several episodes of carefully constructed surface which alternate with occupation related deposits rich in anthropogenic inclusions. Of particular interest is the changing composition of these surface constructions through time, and the potential relationship of this to internal layout and the remodelling of the building as a whole – do the compositions of these surfaces have a significance beyond the practical?

Contrasting with this is the sample set from the very different Structure 8. Over 18m long and featuring a large and diverse set of features such as cists, hearths, internal divisions and recess areas indicating potential specialist activities, Structure 8 shows a far thinner sequence of surviving internal deposits - the result of a short life span due to subsidence and collapse. This prompted a very different micromorphological sampling strategy. Individual samples precisely located at points of interest within and adjacent to not only key structural features, but locations referencing the interior geography of the building provide an opportunity to explore both the microstratigraphy of specific areas within Structure 8, and the use of space within the building through time.

TH5-10 Abstract 04

Canals fills archives: environment and water management in Sarazm (Tajikistan) during Bronze Age

Author - PhD Student Cez, Lucie, University Panthéon-Sorbonne, Nanterre, France (Presenting author)

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Co-author(s) - Cez, Lucie, University Panthéon-Sorbonne, Nanterre, France

Keywords: Canals sedimentary fills, Geoarchaeology, Micromorphology

Presentation Preference - Oral

Canals fills archives: environment and water management in Sarazm (Tajikistan) during Bronze Age

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Keywords: Canals sedimentary fills, Geoarchaeology, Micromorphology

Presentation Preference - Oral
Sedimentary accumulation in a canal reflects mostly anthropogenic process (runoff intensity control, water inflows rhythm, regular clearing) related to his function, especially in the case of an irrigation canal. Sedimentary accretion in open-air hydraulic structure is also marked by natural process controlled by environmental conditions (hydrology, climate) at one point in time. As a result, sedimentary fills of canals provide high-resolution pedo/semi-sedimentary sequences for fine restitution of closely intertwined socio-economic dynamics and paleo-environment. The restitution of the operating history of hydraulic structures as canals required a geoarchaeological approach based on all-scale analysis of their sedimentary archives of fills (stratigraphic sequences analysis, geoarchaeology, micromorphology of soils, OSL dating).

Such an approach lead on exceptional and well-preserved archives of fossil canals of the northern edge of the archaeological site of Sarsam, which attest a proto-urban settlement during Chalcolithic and Early Bronze Age periods. The micromorphological study of Early Bronze Age canal (dated by OSL from 4.5 +/- 0.4 Ky) aims to research under polarizing microscope and identify pedological and sedimentary diagnostics features relevant of: (1) anthropic process of water management linked to the canal building and operating, runoff implementation and maintenance; (2) natural process expressed by drying or freeze features reflecting local and micro-regional hydro-climatic conditions relative to semi-arid environment. Forward, the sequencing of these data allows a fine restitution of the operating dynamic of the hydraulic structure in the frame of environmental past conditions in its life.

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**TH5-10 Abstract 05**

Geoarchaeological portrayal of decayed dwellings at the Bronze Age settlement of Solarolo (Italy)

**Author** - Peinetti, Alessandro, UMR 5140, Paris, France (Presenting author)
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Since 2008 the University of Bologna has been carrying out archaeological researches in Solarolo, a Bronze Age village located in the southeastern part of the river Po plain, in northern Italy. The preserved stratigraphy refers to the central phase of the Italian Middle Bronze Age (about 1550-1450 BC).

The presence of perishable dwellings, built with wood and earthen materials, that normally don’t leave clear traces except for post holes, make the comprehension of built spaces very difficult. In northern Italy, several types of dwellings – dating back to the 2nd millennium BC - are archaeologically documented.

In order to understand the nature of the buildings and their relationship with courtyard spaces, a spatial geoarchaeological sampling has been carried out in the site. A first attempt, based on soil micromorphology, is here presented: both the inside and the outside of a preserved roofed space are sampled.

The analyses focus on the local pedoclimatic markers, on the trampling traces and on the provenance and nature of different soil components. The aims of these first observations are to recognize the presence of roofed spaces, to understand the real building of the building floors and, generally, that of the dwellings; finally, they tend also to define the evolution of the building during its life.

In this way we can draw a “biography” of a single built space, useful to understand cultural architectural patterns, not always visible in the macroscopic archaeological record.

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**TH5-10 Abstract 06**

Geoarchaeological investigation of waste disposal practices at the Late Neolithic settlement Basel-Gastfbrk

**Author** - Brönnmann, David, University of Basel, Basel, Switzerland (Presenting author)
**Co-author(s)** - Spichig, Norbert, Archaeological service of canton Basel-Stadt, Basel, Switzerland

This question will be addressed by means of micromorphometric and geochemical analysis of well-preserved settlement structures like trampled loam surfaces, stone packings, shallow depressions, probable house floors, ditches and pits in order to characterize different activities and their corresponding sediments. Initial results show that there are significant differences in sediment compositions, associated anthropogenic components and taphonomic proxies between features. 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-Gastfbrk.

This will permit the reconstruction of waste disposal practices, activity areas and resource management, which is essential for interpreting assemblages like the inventory of an infilled pit. Without knowledge of how (prehistoric) communities handled their resources and their waste, of what happened with used or discarded materials, with accidentally or intentionally broken objects, with fuel and organic waste, with dung and human faeces, interpretations of archaeological features must remain mostly guesswork.

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**TH5-10 Abstract 07**

Firing Divices in Tarascan Land, Zipiáoj, Michoacán, Mexico: To a Mexican Geoethnoarchaeology

**Author** - PhD Student Stevanato, Mélaine, Paris 1 Panthéon-Sorbonne, Malakoff, France (Presenting author)

The firing devices study is largely developed in Prehistoric archaeology. It is obvious that they have an important place and significance, since they often are in the center of the living space. Archaeological excavations on the Matips Prieto (2010-2014), directed by Gregory Pereira in the context of the Uacuasca Project, uncovered hearths' remains in ritual and domestic contexts. Some of them were treated with a micromorphological approach that revealed various sedimentary facies. It show a huge diversity of hearths' histories despite morphologies apparently simple and little diversified. These hearths' microstratigraphy demonstrate the existence of different layouts which present traces of repetitive uses, continuous or discontinuous uses and variable intensity of use. This displays an unequal treatment of the combustion structures (in the shaping of the combustion surfaces, the maintenance regularity, in the layout quality...) suggesting various levels of reading. These certainly depend on the statute and the importance of the hearth. To have a better global understanding of them, we undertake an ethnoarchaeological project of contemporary fire devices. It will permit to develop the knowledge on the functional history and on the formation processes of the infilling, according to technical gestures (shaping of the mud, application of the material...) and the use of the layouts (the choice the combustion atmosphere, the heating intensity, the use continuity, the function of the device and its statute).

Field operations took place in the village of Zipiáoj, inhabited by Purepechas who are descended from ancient Tarascan people. Some of the inhabitants of Zipiáoj still apply ancestral pyrotechnical techniques. Thus, some ceramic cooking devices and domestical devices were sampled with micromorphological protocol. Therefore, this paper will discuss the micromorphological analyses results and the interest of developing a geoethnoarchaeology of firing devices using clay material.

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**TH5-10 Abstract 08**

Use of space in metalworking - Spatial analysis of working areas by systematic soil sampling

**Author** - Jouttiájni, Arne, Herr, Virum, Denmark (Presenting author)

Metalworking is often considered only in terms of the primary technological processes involved, but is in fact a complex of processes taking place within a more or less well defined ‘room’ or space. Instead of only focussing on what is going on within the workshop or furnace, it is therefore important to see these as a network of interdependent cemeteries in short distance. Basel-Gastfbrk is among the large, unfurnished, 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-Gastfbrk.

To date, more than 600'000 artefacts and 900'000 animal bones have been recovered, mostly from infilled storage or cellular pits. Numbering more than 500, these represent the most frequent archaeological structures in the settlement. Recent interdisciplinary investigations showed that the majority of the architectural findings are associated with dark sediments which contain plenty of inorganic and organic components such as ashes, clab and burned loam 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 settlement structures like trampled loam surfaces, stone packings, shallow depressions, probable house floors, ditches and pits in order to characterize different activities and their corresponding sediments. Initial results show that there are significant differences in sediment compositions, associated anthropogenic components and taphonomic proxies between features. Bone fragments, for example, show clear variations in preservation apparently correlated with specific archaeological features or postdepositional processes respectively. The geoarchaeological data will be supplemented by bioarchaeological and archaeological findings to get a comprehensive idea of syn- and post depositional processes at Basel-Gastfbrk.

This will permit the reconstruction of waste disposal practices, activity areas and resource management, which is essential for interpreting assemblages like the inventory of an infilled pit. Without knowledge of how (prehistoric) communities handled their resources and their waste, of what happened with used or discarded materials, with accidentally or intentionally broken objects, with fuel and organic waste, with dung and human faeces, interpretations of archaeological features must remain mostly guesswork.
or by the room as seen in medieval buildings serving as multi-purpose workshops. The surrounding landscape and the social context of the “workshop” might also influence its organisation.

New methods of systematic sampling of workshop floors and working areas found at archaeological excavations, together with analysis of process waste, provide a picture of the physical organization of work within “workshops”. In 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 craftmen between the different parts of the workshop might in some cases be visible. For example, coal ash, charcoal, and the dragging of the smaller fractions of debris such as hammerscale, from the areas in which they originally have been deposited1,2. A number of examples ranging from the organisation of one roasting and iron smelting sites in the Iron Age to medieval smithies are presented.


TH5-10 Abstract 09

Function, environment and dating of Mesolithic sites in Champagne: malacological answers

Author - Granai, Salome, Geoch infection, Villex sous les cotes, France (Presenting author)

Keywords: malacology, Mesolithic, palaeoenvironment

Presentation Preference - Oral

In the past two years, in Champagne (France), malacological investigations have been carried out in pits dated from Early Mesolithic to Late Neolithic. In 2014, at Rouilly-Saint-Loup Le Champ au Loup (Aube), a first analysis of three pits has led to assess the scope of malacological results in such structures. The results of this first exploratory study have prompted the pursuit of larger-scale investigations, in 2015, at Rechy Le Parc de Référence (Marne), where malacological assemblages of about forty structures have been analysed. The presence of abundant malacological remains within the most structures demonstrates that they have been left open after their digging and then filled gradually by a natural accretion of sediment and organic matter. In addition, the composition of recovered faunas and the existence of spatial patterns suggest that the studied structures have been dug in a forest environment but the proportions of the different molluscan species vary through time. The malacological successions found in Champagne are in echelon with the palaeo-environmental record dated from the first part of the Holocene in the Paris basin and its margins. In light of these reference series, some radiocarbon dating from Rouilly-Saint-Loup and Rechy 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 palaeoecology of the region. The position, on a slope formed by colluvium deposits and furrowed by the stream Athiaki, offers good conditions for a geomorphological study. The study Klimonas carried out includes two sections: the first the site and the second the area of the valley. A section directly related to the site provides information on the palaeoecology of the site when it was settled and the colluvium dynamics. The Athiaki valley is formed by three alluvial fans terraces cumulatively 15 meters of height. The alluvial terraces recorded by 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 and the terminal stage of the Holocene, providing a unique palaeo-environmental record for the whole island, part of them is contemporary to the PPNA Klimonas occupation. This study aims to understand the interaction of the Neolithic society with its surroundings and to reconstruct the palaeo-environmental and fluvial conditions in a long period.

TH5-10 Abstract 11

From water to land and back: multidisciplinary researches at Marine Cave of Bergeggi (Italy)

Author - Dr. Sanna, Laura, University of Genova, Agenzan, Italy (Presenting author)

Keywords: Geomorphology, Prehistory, Submerged site and cave

Presentation Preference - Oral

In late nineteenth century, the geologist Arthur Issel first recognized the importance of the Marine Cave of Bergeggi (Bavona – Liguria, Italy), where he found a complete stratigraphy referring to Quaternary, with different stages of marine transgression and regression. This site is in fact known as the largest karst cave and the most important coastal cave of Liguria, with a submerged and an emerged part, both shaped by marine processes that occurred during different sea level changes. After these earliest researches, and during many decades, the cave has been then examined both by geologists and by anthropologists, with different aims, often not converging. While on the one hand the possibility to examine geological sea-level markers has allowed scientists to achieve information about the geological sequences of this trait of coast, and on the other hand, anthropologists and archaeologists have limited their studies to the recovery of artifacts coming from the emerged section of the site, without running proper researches. This kind of investigation has lasted until the last quarter of the 20th century, when the archaeological study of the cave has been abandoned. In recent years, a team of geomorphologists has then identified some marine and continental deposits, landforms of marine origin (i.e. marine wall grooves and L. Lithopaga bands), as well as one of the best documented marine wall grooved to MS 5.5 of the whole Tyrrenian coast.

In the light of these new data, and thanks to the possibility to examine the submerged section by diving directly on site, the writer has then conducted, in 2014, a non-invasive archaeological survey of the whole site, including both the emerged and the submerged section. The possibility to compare the data achieved during these surveys to those obtained by geomorphologists has then permitted to propose a sequence of human occupation of this cave during prehistory. The studies conducted by these latter, in fact, even if unfortunately limited to the emerged section, have given us the first absolute dating of the geological layers of the cave. More in detail, the chance to observe the effect of the sea on the general topography of the cave, as well as on the stratigraphy of the different terrains that form the emerged and the submerged section, has permitted to propose a possible diachronic development of the site, allowing us to recognize four different stages, dating from the middle Palaeolithic to the Iron Age, when the cave has been in use in different parts. All these stages have then been related to archaeological materials found during this and during earlier campaign, studied by the writer on permission of the Archaeological Museum of Florence.
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 on the modern ecosystem. These results reveal the soil memory effect link with ancient mining activity. Late Iron Age and Roman-era features were identified, and the compilation of data and the collateral geophysical surveys will be presented.

Keywords: geoarchaeology, geochemistry, hilltop settlement site

Co-author(s) - De Neef, Wieke, University of Groningen, Groningen, Netherlands
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Presentation Preference: Oral

In mountainous landscapes, with strong landscape taphonomic processes going on for long periods, detecting and assessing the evidence for prehistoric occupation can be very difficult. In this paper, the authors, from the Universities of Groningen and Amsterdam (Netherlands), highlight occupation remains in a landscape context which is hard to investigate, but which also provides unique site preservation conditions: namely, debris slopes at the foot of the Pieve di Teco limestone rock face.

We present recently obtained results from the Rural Life in Protohistoric Italy project, which aims to develop improved approaches for the detection and study of ephemeral pre- and protohistoric remains in Mediterranean environments. The earliest settlement remains recorded in the basin of the Ragonato River, our study area in Calabria, southern Italy, are located at the tip of such debris slopes covering the foot of South- and East-facing limestone scarps. These remains present as very dark, fine-grained deposits containing fragments of debitage, bone and charcoal interspersed with rare radiocarbon features, which make them difficult to detect in archaeological surface surveys due to the remoteness, extreme relief, ongoing deposition processes, and adverse vegetation. However, our multidisciplinary investigations (including soil studies, geoarchaeological prospection and high-resolution archaeological studies) show that such sites contain surprisingly well-preserved remains, including a wealth of environmental data on early subsistence strategies.

The paper focuses on these debris slope sites. Site RB12ta was initially exposed by quarrying activities, revealing deposits with pottery, bone, and charcoal; a surface survey of the wider area revealed several more protohistoric artefact scatters and at least two more ‘black earth’ deposits within the debris slope below the Tempi Sant’Angelo limestone cliff, indicating long-term use from the Middle Neolithic to Bronze Age. The second site, RB15ta, is located in a similar South-facing debris slope, but is exposed by the inclining gully of a seasonal stream; the archaeological stratigraphy in the gully section revealed deposits and materials from the Late Neolithic to Iron Age. At the third site, RB13ta, located in the debris slope East of the Tempi di San Lorenzo cliff, discovery was aided by erosion caused by goat and tourist trampling; we excavated a small test pit which yielded a surprisingly deep stratigraphy of 1.80m, with three distinct Middle Bronze Age phases. In this paper, we will show how we adapted our research strategy to investigate these three sites, focusing on their formation, on the well-preserved botanical and zoological records indicative of early upland exploitation, and on the implications this has for our understanding of late pre- and protohistoric settlement and land use strategies in the Mediterranean uplands.

Keywords: domestic contexts, Late Prehistory, wind-throws

Presentation Preference: Oral

Until the 80’s of the 20th century, the archaeological research from Neolithic to Bronze Age in NW Iberia was focused on burial sites and rock art. Since then, several research projects and rescue excavations brought new data on housing and domestic contexts during Late Prehistory. In some of the Chalcolithic and Bronze Age open-air settlements studied, together with pits, post holes, hut floors and archeological hedges, excavations have been recorded oval or circular hollows measuring 1.9 to 3.5 metres wide and 1 metre of depth, usually with an irregular section. These have been considered huts remains built on perishable materials. These structures were commonly filled with two different deposits, an organic and dark brownish layer, and another light and inorganic. From the organic deposits there has been recovered a high concentration of fungal sclerotia that have a symbiotic relationship with roots of trees or bushes. Finally, we would like to highlight that inside these openings are uncommon micro-socio-ecological systems. 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 Medieval period. These results support the assumption that the lead detected in soils from the medieval cabins is related with the medieval mining activity, the hut being probably used for (stocking and/or metallurgical activities).

Keywords: gone with the wind: huts or tree wind-throws

Presentation Preference: Oral

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remained undetermined for a big proportion of features due to complete absence of artefacts. Therefore, the essential tasks of geoscientific investigations was to trace anthropogenic criteria, if any were any. Multivariate statistics were performed for 20 variables including element chronologically relevant. 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 difficult to directly interpret chemical soil data in term of recent 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 faunal and cultural value.

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TH5-10 Abstrat 16

Tracing the ditch from Zhabotyn 

Early Iron Age settlement (Ukraine) using magnetometry

Author - Dr. Daragan, Marina, Institute of archaeology NASU, Kiev, Ukraine (Presenting author) 

Co-author(s) - Dr. Bondar, Kseniia, National Taras Shevchenko University of Kyiv, Kyiv, Ukraine

Keywords: Early Iron Age, magnetometry, settlement pattern 

Presentation Preference - Oral 

At the end of IX – beginning of XIII century BC revolutionary changes occur in of Middle Dnieper area (Ukraine), relating to Chernolesskaya culture. All settlements and villages of Chernolesskaya 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 Zhabotinsky phase distinguished after eponymic reference Zhabotin settlement. New settlements also have a large area - from 10-20 to 100 hectares and are arranged in clusters. All of them have no visible fortifications, but they are located on the topographical plots, which provide natural protection, being surrounded, usually, on three sides by deep gullies.

New research carried out on Zhabotin settlement provided new information about its topography features and the defense system. In the 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 160 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 ditch is the oldest known constructional feature observed in the area. The ditch is located in the center of the settlement, although it is not the main axis of the settlement. Archaeological excavations proved the ditch to be of complex layer, with characteristic magnetic susceptibility, indicating main chronological stages between 8th – beginning of 6th century BC. It is demonstrated that the magnetic anomaly over the ditch is formed mainly due to later building horizon. The width of the anomaly corresponds width of the ditch in the upper part (to the depth 2.30 m).

The ditch was laid on early but not the initial stage of settlement being, it had been preceded by earlier constructions. Archaeological excavations proved the ditch to be of complex layer, with characteristic magnetic susceptibility, indicating main chronological stages between 8th – beginning of 6th century BC. It is demonstrated that the magnetic anomaly over the ditch is formed mainly due to later building horizon. The width of the anomaly corresponds width of the ditch in the upper part (to the depth 2.30 m).

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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 Merger' 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 geomorphological data, supplemented paleontological and palynological on-site data, we reconstructed significantly different landscape around the settlement in the Early Neolithic (8.5 thousand BC), than today's. Continuously-inhabited settlement was located directly at the lakeshore and surrounded by open steppe landscapes, almost treeless. The climate was drier, although episodes of extreme flooding are also marked by stratigraphic and palynological data. Apparently later in the Chalcolithic (3 thousand BC) on this site were only seasonal constructions, but other constant settlements have been found on elevated terraces. Forest-steppe landscapes with birch forests were widespread at that time there.

The dwellings on the Neolithic stages was classified on preserved traces of ground constructions, organic materials and archaeological finds, we made a graphic reconstruction of the external appearance of buildings and analyzed the dynamics of housebuilding tradition. We compared the archaeological and palaeoecological data and focus on the structural features of the houses in the nesim-dugouts and 6 light onground houses), accessibility of natural materials for the construction, episodes of backfill (rising) 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 taphological study of the function of stone and bone implements using for building. The revealed facts indicate a high degree of adaptability of ancient settlers allowing to exploit for a long time the compact ecological niche near the lake.

TH5-10 Abstract 21
Geoarchaeology of Capsian settlements in eastern Maghreb: spatial organisation of outside areas
Author - Eddagarch, Wassel, Maison Archéologie & Ethnologie, René-Ginouvès, Nanterre, France (Presenting author)
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Keywords: Capsian settlements, Geoarchaeology, the eastern Maghreb
Presentation Preference - Poster

The geoarchaeological research on Capsian settlements in the eastern Maghreb region is based on soil micromorphology. This research is important to understand the systems of settings of these nomadic and/or sedentary populations, by the characterization of the sedimentary records related to activities and their organisation. The micromorphological analysis reveals complex occupation dynamics, dominated by anthropogenic processes interacting with natural processes. Occupation surfaces show a great variability of sedimentary micro-facies according to 1) the nature of activities, 2) their spatial localisations, 3) micro-local climatic conditions and 4) the frequency and 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 Capsian settlements.

The aim of this communication, is to present new results about formation processes of occupation surfaces of outside areas, from several Capsian sites from Eastern Maghreb: Doukaneit El koutila (Biliana-Tunisia) Kef Elzah (Kairouan-Tunisia), El Mekta (Dalta-Tunisia) and SMM -1 (Hergla-Tunisia).

TH5-10 Abstract 22
Inferring the Neolithic pits function from sedimentary record: the case of Le Pirou (France)
Author - Dr. Wattez, Julia, INRAP, Paris, France (Presenting author)
Co-author(s) - Gandelin, Muriel, 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 Pirou”. About one hundred circular pits are arranged around an empty space, which its nature stays unknown. Some of these features are identified as human or animal burials but for the most of them, the primary function is under discussion: dumps because of the cultural remains diversity (potsherds, lithic, charcoal, animal bones), or storage structure due to the shape of the pits section. The pits’ 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 (4216 to 4714 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
Microgeomorphology of combustions structures at Birnirk and Thule sites of the Cape Espenberg site
Author - PhD student Vanlandeghem, Marine, UMR 7041 ArScan, Equipe "Archéologies environnementales", Nanterre, France
Co-author(s) - Wattez, Julia, Centre Archéologique de La Couronne INRAP, La Couronne, France (Presenting author)
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Keywords: Alaska archaeology, Combustion structures, Micromorphology
Presentation Preference - Poster

In Northwest Alaska, human societies have adapted their subsistence strategies to extreme conditions. At the coastal Cape Espenberg site, excellent conservation conditions have allowed the preservation of many cultural features (architecture, hearths, middens) within a series of aggregating beach ridges. Remains of semi-eusternanese 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 Kaltuvite 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, fit, 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, we have analyzed three case-studies at Birnirk and Thule houses, whether domestic (cooking, boiling water, heating, lighting, etc.) or specialized (ceramic firing, smoking of fish, etc.) for anthracological and micromorphological analysis. This sampling protocol provides the opportunity for a multi-variate, 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 of fish, etc.) and / or drying of foods, etc.). In this poster we present results of the soil micromorphology analysis and compare the areas sampled in terms of function and spatial organization in light of prior results of charcoal analyses.
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 Open Source 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 presenting 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.

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THS-11 Abstract 01
Digital media as an effective platform to archaeological data dissemination

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Keywords: 3D models, Information System, open-source software

Presentation Preference - Oral

The Unit of Archaeology of the University of Minho (UAUM) start to be concerned about digital preserving of the archæological data in the nineties, due to the large amount of records (both graphic and alphanumeric) mainly gathered during the rescue excavations carried out in the city of Braga since 1976. In order to facilitate the management and preservation after 1994 all the archaeological records start to be regularly digitized and stored in an Oracle DB. Later in 2000, as part of UAUM’s information system strategy, these data were migrated to a MySQL database. Simultaneously, to ensure a continuous update and management of the data, a web-based back-office was developed using HTML and PHP. This technological independence strategy enabled a constant growth of the back-office, ensuring modularity, integration and customization facilities according to the user’s needs. The designed Information System (2ArchIS) supports several modules, which range from the stratigraphy of any kind of excavations to the territory analysis and landscape characterization, connecting the alphanumeric data with images, vector graphics, cartographic documentation and bibliography. Furthermore, it can also integrate data resulting from the analysis and interpretation tasks.

The architecture of 2ArchIS also favours the data exchange with external applications. It is possible to export data to archED and ARGIS enabling the automatic creation of a graph regarding the stratigraphic matrix and materials, that can be a valuable asset for the archæological research.
Rapid, medium scale (millimetre to micrometre) high precision 3D scanning is used to produce digital models of fragmentary archaeological remains. These models are then processed using free open source software and a set of published data manipulation algorithms that disect and compare surfaces within a given assemblage of material. This outputs probability matrices from which refitting surfaces can be derived. This effectively automates the refitting process and affords the researcher manipulation algorithms that dissect and compare surfaces within a given assemblage of material. This outputs probability matrices from which refitting surfaces can be derived. This effectively automates the refitting process and affords the researcher...
TH5-12 Abstract 02
Methodology and perspectives. Use of metal detectors in the Little Poland region
Author - MA Bulas, Jan, Jagiellonian University, Kraków, Poland (Presenting author)
Keywords: Iron Age, Little Poland Upland, metal detector
Presentation Preference - Oral

In Poland, as in most European countries there is an ongoing debate about the risks associated with the use of metal detectors by treasure hunters while illegal surveys. This topic largely overshadowed subject of methodological use of metal detectors during archaeological excavations, and during field-walking surveys. The discussion within the scientific community, which was also held in Poland, mainly in the 90s and in the first decade of the twenty-first century, above all was limited to a debate whether the use of metal detectors in general should be allowed during scientific research or not. The subject of methodological application of this tool was virtually ignored.

The aim of the paper is to present a reflection on the advantages associated with the use of metal detectors during archaeological excavations and field surveys in characteristic nitty terrain of the Little Poland Upland. This reflection will be based on the experience of the last decade of research in the area, primarily on the various Iron Age sites. The presentation will address the issue of the relationship between topography, geological and archaeological stratigraphy of individual sites and the results of a metal detector prospecting. Research at several archaeological sites allowed to statistically verify what percentage of the finds is located in layers intact by agricultural work, and how much of them lies in the top soil. The presented study will therefore provide an example of a case study associated with a specific geographical area and sites dating back mostly to the Iron Age.

TH5-12 Abstract 03
Strategies of Detectoring Research in Mountain Areas of Slovakia
Author - Dr. Hornak, Milan, VIA MAGNA s.r.o., Vootly, Slovakia (Presenting author)
Co-author(s) - Dr. Mgr. Kvietok, Martin, Central Slovakia Museum Banska Bystrica, Banska Bystrica, Slovakia
Keywords: Detectoring, mountain areas, Slovakia
Presentation Preference - Oral

The hillfort is a typical settlement unit for mountain areas of Slovakia for a long period of time from the late Bronze Age until developed Middle Ages (12th - 13th century). A typical aspect of hillfort is in addition to building of fortification also treatment of landscape of its close economic background into a system of terraces, on which economic, agricultural and settlement activity concentrated.

We currently know about several hundreds of prehistoric or medieval hillforts with various settlement intensity in this landscape.

Other objects typical for mountain areas are various types of communications from service roads up to roads of trans-regional nature. There is a vast number of archaeological findings situated along such roads, which enable us to date the period of road usage as well as nature of goods transported on such roads or types of travellers using them.

Last but not least, mountain areas of Slovakia are rich in numerous relics of old mining activity, ranging from simple exploratory shafts through large extraction and processing areas up to abandoned mining villages. Material obtained from them enables us to learn about contents of material culture of mining communities from the oldest time to modern period.

Intensive and unregulated mass detectoring has been occurring during the last quarter of century not only in Slovakia. It affected especially hillforts and their immediate background. Although mass detectoring has brought irrevocable damage to learning about the national cultural heritage (absence of information about the finding site or about particular circumstances of the finding), it has also brought vast amount of information about the material culture of prehistoric and historic communities living in this area, even though such information has various informative value. Mass detectoring has also brought discoveries of numerous new localities, which are exposed to biggest risks without the immediate response by archaeologists.

In this paper, the number of artefacts affected by mass detectoring, archaeologists must face the question of how to effectively approach the detectoring reconnaissance of said types of archaeological localities so as to be “step ahead” of illegal robbers.

Our paper presents strategies of detectoring research in mountain areas of Slovakia based on research of recent years.
TH5-13 Abstract 01

Environmental conditions and Mesolithic-Early Neolithic sites in the basin of Vozhe Lake (Russia)

Author - Dr. Kosorukova, Natalia, Cherepovets State University, Cherepovets, Vologda region, Russian Federation

Keywords - Environmental conditions, Mesolithic, Early Neolithic sites, Vozhe Lake

Presentation Preference - Oral

TH5-13 Abstract 02

Baltic Sea Lithuanian coastline changes in Mesolithic: landscape and peoples subsistence economy

Author - Dr. Žukus, Vilmas, Kaipėda University, Kaipėda, Lithuania

Keywords - Mesolithic inhabitants, Palaeoenvironmental situation, the submerged prehistory

Presentation Preference - Oral

TH5-13 Abstract 03

Mediterranean foragers exploited cetacean strandings caused by climate change around 8,200 years ago

Author - Dr. Mannino, Marcello Antonio, Aarhus University, Højbjerg, Denmark (Presenting author)

Keywords - carbon and nitrogen isotope analyses, cetaceans, hunter-gatherers

Presentation Preference - Oral

TH5-13 Abstract 04

Changes in seawater temperatures in northern Iberia during the Late Pleistocene and Early Holocene

Author - Dr. Gutiérrez-Zugasti, Igor, Instituto Internacional de Investigaciones Prehistóricas de Cantabria, Santander, Spain (Presenting author)

Keywords - marine isotope analyses, palaeoceanography, palaeoclimatology

Presentation Preference - Oral
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 ~1 ka BP using oxygen isotope ratios obtained from the limpet Patella vulgata (L. 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. Rainfall also shows 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.

Mammalian response to climatic instability over the Pleistocene-Holocene boundary in Britain

The closing stages of the Devensian glacial through to the Holocene interglacial (c. 15 000 cal BP – 11 500 cal BP) saw a series of rapid oscillations in global climate associated with major turnover events in floral and faunal compositions. Climate is known to be a primary driver of biological evolution and such abrupt climatic fluctuations are likely to have exerted strong selection pressures on mammal species. In Europe, this period also associated with large-scale changes in human populations, culture and technology. This study applies a novel synthesis of ancient DNA and 3D geometric morphometrics to sub-fossil material recovered from the British zoo-archaeological record in order to investigate the tempo, scale and mode of mammalian response to this rapidly changing climate.

Britain is ideally placed to examine the question of climate-driven faunal turnover on account of its sensitivity to climate change driven by its proximity to the North Atlantic. Its exceptionally rich fossil assemblages and its geographical position, formerly connected by a landbridge to the European mainland, allowed regional level population instability and eco-morphological change over the terminal Pleistocene. This region has been explored in a number of mammal species: a micromammal (common vole, Microtus arvalis), a woodland specialist (Eurasian beaver, Castor fiber), a carnivore (wildcat, Felis silvestris) and a large grazer (European bison, Bison bonasus). The multi-proxy methodology applied here allows key questions relating to both population patterns and processes and morphological plasticity to be explored. Ancient DNA analyses including traditional Sanger sequencing and Next Generation Sequencing (NGS) technologies to create both single gene mitochondrial and genome-wide Single Nucleotide Polymorphism (SNP) datasets while morphological analyses applied 3D digital imaging and 3D micro computed tomography (microCT) to sub-fossil bones and teeth. This represents one of the first studies to combine these techniques and apply them to mammal material of this age. The relative merits of these approaches, along with the results of this study, will be discussed.

Faunal palaeoecology, Food resources, Neanderthal

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 remains, with a geographic range of Europe limited to the East by the Urals and Caucasus and to the North by the British Isles and Beringia. These dates are geological time- intervals. Principal Component Analysis (PCA) is used to study the differences in resource exploitation between Neanderthals and AMH. Improvements in radiocarbon dating allow us to track changes in diet through time and space for both Neanderthals and AMH. We used Cluster Analysis (CA) in a GIS setting, showing that sites cluster according to similar species composition through time and space.

The PCA confirms that Neanderthals are indeed more closely associated with species living in forested environments and AMH are more closely associated with species living in open environments. The geographical application of CA shows that there are geographical changes through time and space in species composition of archaeological sites, and this suggests that both Neanderthals and AMH have changed their diets through time and space. These analyses increase our understanding of the hominins adapting to changing climates and the results may be used in modelling the demise of Neanderthal populations.
with strontium isotope analysis) is commonly used to infer childhood geographical origin. However, given that dental tissues form incrementally, and only capture isotopic inputs from a fix period (i.e. during their formation), their analysis only offers short-term records that (depending on sampling strategy) can encapsulate seasonal biases. The oxygen isotope analysis of other skeletal tissues and fractions, such as bone collagen or bone phosphate, offers the potential to provide evidence of longer-term mean oxygen isotope inputs and infer the composition of drinking water in later life. Not only could this be useful as an indicator of later life mobility, but also as a palaeoecological proxy or even as an indicator of certain dietary practices (given that, in some cases, culinary preparation techniques can significantly alter the composition of dietary water). Prior to routine archaeological application, however, the investigation of inter-tissue, methodological and taphonomic (diagenetic) factors affecting oxygen isotopes in skeletal remains is necessary.

Here, we present oxygen isotope data (δ18O) generated from multiple tissues deriving from the same archaeological individuals from Medieval and Post-Medieval British sites with the aim of exploring inter-tissue/inter-fraction variation as well as geographical and temporal variability. Individuals were selected from different geographical locations (Yorkshire, London) representing both rural and urban populations. Oxygen isotope values were determined in bone and tooth phosphate (δ18Op), tooth carbonate (δ18Oc), and also in bone collagen (δ18Ocoll). Isotope analyses were combined with FTIR in order to provide additional insights into sample integrity. The implications of this research for the planning of future archaeological isotope investigations and sampling strategies will be explored.

STH5-13 Abstract 09

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 from two distinct Croatian landscapes: central Dalmatia and Uka. Sampeld 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 geographical differences in food production, development, spread, and ultimate divergence amongst these early agricultural strategies.

STH5-13 Abstract 10

Changing cultures, changing environments

Author - Pitt, Jacqueline, Bournemouth University, Bournemouth, United Kingdom (Presenting author)
Keywords - Human-animal interactions, Palaeoecology, Zooarchaeology
Presentation Preference - Oral

Climate and environment are critical factors for the survival of every living species. Animals and plants are not only conditioned by, but also change their environments. The interaction between different species and their environments changes over time and as such can be very informative, but identifying this complex relationship in the archaeological record is challenging.

The domestic chicken presents an interesting case study. Introduced into Europe during the Iron Age as a non-native species, its novel presence necessarily alters its ecosystem, both in terms of inter-species relationships and on account of humans altering the local environment to accommodate this newly-domesticated exotic bird. Application of ecological community models to archaeological faunal data forms the basis of a macro-scale approach to explore the complex network of interactions that determined past ecosystems. Europe-wide comparison of faunal and floral evidence at site level from the period prior to the introduction of the chicken up until the end of the Roman Empire enables us to better understand how change in culture and attitudes over time have been influenced by, and shaped, the environment within which these communities existed.

STH5-13 Abstract 11

Revisiting the impacts of coastal sand movement in prehistoric Scottish Islands

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Keywords - aeolian sand, geoarchaeology, Scottish islands
Presentation Preference - Oral

Islands and their coastlines have long been important landscapes for settlement, resource procurement and structuring social interaction. Such environments have also proven fruitful in exploring environmental change and its impacts on human activity. Coasts are by their nature dynamic and locally-variable. Manifestations of environmental change such as flooding, erosion and sand movement can have immediate and visible impacts on coastal activities and geomorphology. Historical sources provide a detailed view of environmental deterioration and its far-reaching effects on coastal populations throughout Britain, particularly during the Little Ice Age. Notable impacts is that of coastal sand movement and inundation, leading to the marginalisation and abandonment of agricultural land in response.

The presence of blown sand horizons at coastal archaeological sites attests to similar movements in the prehistoric period across northwest Europe. However, the nature of impact and response in the prehistoric record is less clear, with environmental proxies often proving ill-defined. Prehistoric archaeologists face the challenge of reconciling temporal scales provoked by the environmental sciences with scales that are archaeologically-meaningful to explore similar human-environment relationships at deeper timescales.

This paper will introduce a doctoral research project which aims to catalogue and characterise episodes of coastal sand movement in the prehistoric period using the Northern and Western Isles of Scotland as a case region. A mixed-methods approach has been taken to this research, combining archaeological evidence with geoarchaeology and historical analogy. The project also utilises geophysical survey and luminescence dating to investigate the nature, source and chronology of sand movement on archaeological sites and landscapes. This will then be placed within the wider socio-cultural context of a region where suggested ‘buffering’ responses such as mobility and diversification can be reviewed. Selected multi-period sites in Orkney and the Outer Hebrides are being used to explore the ways in which this complex archaeological and environmental record can be approached.

STH5-13 Abstract 12

Anthropogenic impact on the changes in landscape in the tract “Adzhieł” in the Eastern Crimea

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Keywords - antiquity, Crimea, landscape
Presentation Preference - Poster

The connection between location of ancient settlements with the conditions of the environment and agricultural potential is obvious. It is equally obvious, the dependence of the choice of location for the settlement with the landscape. In this connection, great interest is the analysis of the historical situation in a particular area in the presence on it of one or more dominant objects of human impact on the environment. In our case, that is the territory of the tract Adzhieł. The tract occupies part of the territory of the Eastern Crimea adjacent to the Sea of Azov, is located 45 kilometers west of the eastern point of Crimea, and covers an area of about 40 km. km. The name of this area connected with Adzhieł gulch, located here. As a result of studies of the XX century, there are discovered many barrows and more than a dozen ancient archaeological sites of other types. For detection the relationship the provisions of the identified objects of natural-geographical and landscape features of the tract, GIS has been prepared, including layers, describing the geology, soil properties, topography and hydrology of the area. On a large part of Tracts Adzhieł, with modern agriculture field, there are no traces of settlement structures, says, that in ancient times these territories were not built up, but could also been used for agriculture. Settlement structures are located primarily along the boundaries of the modern fields, in areas with less fertility soils. The territories occupied by modern fields as underlying plates rock in the middle and lower Flisovo rocks - sand, clay, iron ore, shelly limestone; rocks of Moetsia border of Upper Moetsa - shelly limestone, Ectoprocta 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 micelar-carbonate blonde earth, are one of the most fertile soil types on the Kurch 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.

The existence of human activity about the possible nature of the condition of the territory of the tract in antiquity, based on the absence of archaeological material in the territory of modern fields correspond to the conclusions made based on the analysis of geological and soil conditions of the area - the types of soil in the tract Adzhieł 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, ie, 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) Arbelti (and the settlement "Belinsky")" in the Tula State Lev Tolstoy Pedagogical University (reference number 2014/388 Ministry of Education of Russia, research No 1799).

TH5-13 Abstract 13
Geomorphology and early Neolithic migration routes into the Transylvanian Depression

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Keywords: Carpathians, Early Neolithic, migration routes

Presentation Preference - Poster

In this paper we discuss the geomorphological conditioning of the migration routes of the early Neolithic communities into the Transylvanian Depression (Carpathian Mts., East Central Europe), as reflected by the spatial and temporal distribution of the Starčevo – Criş archaeological sites in the western part of Romania. The inventoried archaeological sites are located along rivers, preferably positioned in the floodplain and low fluvial terraces; between 70 - 450 m asl, with few sites at higher elevations along rivers in the mountainous areas. The main access route across the Carpathian Mts was eastward from the Pannonian Basin, along the Mureş River. During Starčevo – Criş I and II, 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 Somesul Mic River and its right side tributaries. Starting with Starčevo – Criş III, the number of the early Neolithic communities has increased, mainly along Mureş River and its main tributaries (Târnava Mică, Târnava Mare, Argeş), associated with a slow eastward movement. A secondary eastward route was along the low alluvial plains (known as The Western Romanian Plain) of Mureş, Criş and Someşul Mic Rivers. Here too, the peoples moved from the area of Mureş alluvial plain to the NE. They arrived in the perimeter of the Someşul Mică alluvial plain only during Starčevo – Criş III and IV. From there, further to the east, neolithic sites are generally absent along the main (1.5 km wide) floodplains but present in the hilly area (crossed but smaller and narrower valleys), suggesting a possible geomorphologic control on the spreading routes. The third route was along Olt River and seems to have occurred only during Starčevo – Criş II and III. These communities moved to the east, along the main river and occupied Bâgâv Depression and other small scale intramountain basins, at the eastern edge of the Transylvanian Basin. However, it is controversial whether Neolithic populations have crossed the Carpathians south to north to reach this route, or have spread eastwards, branching off route I above.

Based on these observations, the authors discuss the natural condition in some specific case studies, in order to offer answers to some key questions: (1) Why Someşul Mic – Someşul Mică valleys seems to had been avoided by the early Neolithic communities? (2) Were the Carpathians crossed only along the Mureş river, west to east, or did Neolithic populations used two routes, the second along the Olt River, south to north? (3) Are there preferential routs in the western alluvial plains, being known the complex fluvial relief in the area, abandoned paleoewamanders, extended wet zones, isolated fluvial relics, low fluvial terraces?

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TH5-13 Abstract 14
North Atlantic and Labrador seasonal climate: isotopic evidence from micromilled bivalves and wood

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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 influences terrestrial and marine environments. Here, we present sub-seasonal climate data obtained using our custom-designed robotic micromilling device from bivalve shells retrieved from a North Atlantic core near Iceland and a wood disc from a white spruce tree collected near the tree line in coastal Labrador.

We provide the first whole Holocene temperature record of seasonality for the North Atlantic, a climatically important region with significant transregional effects. Thirty-five well-preserved aragonitic bivalves were extracted from a marine piston core from NW Iceland and sequentially micromilled concordant with growth banding. Carbonate aliquots were subsequently analyzed for δ18O(CaCO3) values to obtain snapshots of ambient seawater temperatures at a sub-monthly resolution. Our data suggest that the
TH5-14 Abstract 01
Towards a global history of human land use over the Holocene
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Keywords: Agriculture, Holocene, Land use
Presentation Preference - Oral
This paper outlines the aims of the PAGES-funded LandCover6k project (http://www.pagesigbp.org/en/leg/landcover6k/intro), an international and interdisciplinary working group dedicated to reconstructing global Holocene land use and land cover. The initial goal of this effort is to critically evaluate and improve models of anthropogenic land cover change being employed by climate scientists and ensure these are archaeologically robust and are well-informed by current understanding of human land use history.

TH5-14 Abstract 02
Long-term patterns of human land use in the Temperate Woodlands of Northeastern Mississippi, U.S.A.
Author - Bauer, Andrew, Stanford University, Stanford, United States of America (Presenting author)
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Keywords: Climate Change, Land Use, Southeastern U.S.A.
Presentation Preference - Oral
Decades of archaeological survey and excavation in the upper Tombigbee River drainage of Mississippi, southeastern U.S.A., have produced a large body of data related to demographic, settlement, and subsistence patterns over the course of the Holocene. Using seriations of ceramics and hafted bifaces and absolute dating results, we chart fluctuations over time in human population densities and the exploitation of a range of resources. Marked changes in human landscapes use are seen to have occurred during 1) the mid-Holocene, when climate change led to fluctuating environmental conditions; 2) ca. 500 BCE – 1000 CE, when human population growth related to the advent of sedentariness led to increasing hunter-gatherer pressure on local-scale environments; and 3) the adoption of agriculture at ca. 1000 CE, which was selected for in the face of such pressures. We also discuss the different roles that construction of monumental architecture may have played against the changing selective environment over the last 10,000 years in the study area.

TH5-14 Abstract 03
North American Land Use from 6K Onward: A First Look
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Keywords: collaborative research, land use, North America
Presentation Preference - Oral
Our major focus is on the reconstruction of land-use history; the goal is to ensure that interpretations are archaeologically robust, well-informed by current understandings of human land use history and useful to the archaeological community, as well as the climate modeling community. We present initial results from our land categorization work and consider some of the challenges and opportunities associated with these efforts. These include some of the assumptions around the nature of hunter-gatherer human impacts, early farming and ongoing land use activities and how these vary over different parts of the world. Sometimes, models that have been developed for regions such as Europe form the basis for other areas, that reflect more about the role of Europe in the world, than the reality of human impacts, agricultural and pastoral activities in other continents. We hope the project will facilitate more realistic understanding of the variation of human land use over space and time and offer the opportunity for the archaeological community to contribute towards globally important issues.

References:
TH5 Science and multidisciplinarity in archaeology

The presence of the first tell settlements in the southeastern Romania and their development between 4700–3500 BC allowed some observation about animal paleoecosystem evolution over several cultural sequences (Boian, Gumelnița, Satolța and Cernavodă I). Thus, the existence of numerous tell settlements with a complex stratigraphic and chrono-cultural sequences attested (e.g., Hanovoara, Vălceasa, Căscioarele, Văranesti, Drăgănești OF, Gumelnita) gave us the opportunity to record some changes in the livestock and hunting activities. Regarding the livestock activity, cattle and sheep/goat which prevailed, shows highly significant variation linked to the region. The slaughtering curve study reveals that the cattle are grown for milk while sheep/goat is bred for meat. In this manner, between the two types of animals we remarked a complementarity in animals’ products. Our study also captures the pig growing importance from 5% to 25% since the beginning of the first tells settlement, so this is closely linked to the sedentary lifestyle of the Eneolithic populations. Additionally, we showed that the domestic species were not the same, 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 demonstrate that the paleoecosystem 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 05

Intensity of human impact inferred from pollen and-cover reconstruction and archaeological models

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Keywords: archaeological modeling, Reveals, vegetation cover

Presentation Preference - Oral

Recent global change accelerates the need for understanding of human-climate relationship and for quantification of anthropogenic land-cover change in the past. We inferred human impact both from the pollen-based land-cover reconstruction and from archaeological data. We present a current state of the research concerning this cross validation for the Holocene period in the selected regions of the Czech Republic. We used pollen data from the PALYCZ database (http://botany.natur.cuni.cz/palycz) and recalculated them by the REVEALS model into vegetation estimates. The algorithm considers pollen productivity, pollen dispersal and deposition, when interpreting fossil pollen assemblages. The setting of model parameters was adopted from the previous testing, in which the model was adjusted to the recent vegetation in the same regions. Actual regional vegetation (60 km radius) was obtained by combining the CORINE Land Cover map with forest inventories, agricultural statistics and habitat mapping data. Among the vegetation estimates of different taxa, cerealia, Plantago lanceolata and Poaceae were considered as indicators of crop cultivation, pastoral management and deforestation in general.

Archaeological data was taken from the Archaeological database of Bohemia. The intensity of human impact was inferred by a reconstruction of the economic model of a prehistoric community and its consequences to the surrounding environment. Special attention was paid to estimate the amount of cereals that could be grown in different prehistoric periods. Pollen-based and archaeology-based cereal estimates show very similar pattern when compared relatively. However, absolute area of pollen-based Cerealia is ca. 10 times higher than the prediction of the archaeological model. We interpret the mismatch by providing sources of possible biases: REVEALS model assumes that pollen record originates from a large site or several small sites in the even vegetation mosaic, but vegetation in our study area is distributed very unevenly, i.e. sites in the region with the highest signal of cereal is oxboon mires surrounded by cereal patches, so the radius of the region might be smaller than 60 km.

We calibrated pollen productivity in the recent landscape, where autogamous Triticum prevail, however pollen productivity of prehistoric cereal species could vary in the time. Moreover, large grains of wild grasses (Glyceria maxima) could be often classified as cereals.

Miscalculation of human influence on vegetation derived from archaeological data; existing estimates based mostly on assessed past population densities are still very problematic. Although we do not know what is the contribution of each bias, we critically evaluate widely used REVEALS model and significantly contribute to the understanding of human land use history in Czech Republic.

This research was supported by the Czech Science Foundation grants No. 13-111935 and 16-10100S.

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

Integrating syntheses of land use by archaeologists, historians, and historical geographers, we present a preliminary meta-analysis of land use, including different modes of land use - foraging, agriculture, pastoralism, and urbanism - by indigenous and European populations of the European and North American. Our treatment considers eastern North America, the Great Plains of North America, and Middle America, including Mexico. We focus on specific time periods within the Middle and Late Holocene, as land use rapidly transformed from generalized foraging, to specialized foraging, to intensively managed commodification (including forms of pastoralism) and later agriculture, with urban centers appearing by 1000 AD in various parts of North America. We conclude with the historic era, 1850 CE, by which time agriculture and other land use practices were industrialized. Land use characterizations such as these are the foundation for the construction of higher fidelity models of recent climate change. This effort contributes to Land Use 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 07

Middle Neolithic transformations of food economy in the upper Vistula basin (SE Poland)

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Keywords: food economy, Funnel Beaker Culture, South-Eastern Poland

Presentation Preference - Oral

In the first half of the fourth millennium BC, in the upper Vistula basin, from the perspective of the past material culture, the last units of the Long-Neolithic-Police complex (included to the so-called Danubian Neolithisation) disappeared. In that period a new archaeological and economic model emerged in the region. In this context we can speak of Neolithic. In the most complete and systematic way they were modelled by J. Krupski, in the 1970s and 1980s. These transformations would consist of overcoming of ecological and topographical constraints (barriers), characteristic of Danubian Neolithisation, and including into the Neolithisation complex virtually all landscapes of a given territory (second stage of Neolithisation), i.e. eastern part of the area of the Vistula basin. In our case, these processes would involve a much more widespread use of fire as a basic agrontological 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 paleoenvironmental data, obtained i.a. in the settlement of the TRB at Mozgawa (the Priszcz 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 ‘losses’ highlands. Landscape and settlement of Neolithic groups living in the fourth millennium BC in other ecological and economic conditions, not associated with broad-spread, 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 use, vegetation, erosion, Late-Eneolithic, Eastern Norway

Presentation Preference - Oral

The Long-Neolithic-Police complex (i.e. the so-called Danubian Neolithisation) is a particularly important period for the development of settled life in the highlands of the Eastern Norway. In an important study of settlement and land use in this area, J. Krupski (1990) demonstrated that the late phase of the Neolithic witnessed the appearance of large, deforested areas (grasslands and parklands) characteristic for an agricultural economy. These areas were formed by agricultural activities and were shaped to some extent by the erosion of forest materials. The erosion process was mediated by active burning of the grasslands during the season of snowmelt. The study of the sedimentary record of Lake Skogstjern (Eastern Norway) in combination with pollen data and radiocarbon dates provides a high-resolution record of these processes. In the upper layers of the lake sediments (50-30 cm) the strong increase in charcoal concentration is interpreted as a result of the burning of grassland. The high charcoal levels in the upper layers of the lake sediments are in harmonious agreement with reconstruction of land use and vegetation history during the Late-Neolithic. Moreover, the erosion process is studied in layers below the uppermost sedimentary layer (50-30 cm) and characterized by low charcoal concentrations. The high-resolution reconstruction of land use, vegetation and erosion history from Lake Skogstjern contribute to our understanding of the development of agricultural mode of life in Eastern Norway.
In conjunction with two rescue excavation projects in Southeastern Norway, the Vestfoldmuseiprosjektet and the project E18-Rugtvedt-Dyral, a cooperation between the Museum for Cultural History, University of Oslo, and the Graduate School “Human Development and Evolution” of the University of Oslo was established, to extract and analyze a core from Lake Skogstjern, Bamble, Telemark, with the aim 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 herbarial 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 10500 years. Lake Skogstjern has, due to its rather small size, an extra-local signature.

The pollenanalytical data shows that first evidence of human activity emerges already during the Mesolithic, reflecting small-scale openings of the forests by the assistance of fire. First traces of agriculture occur during the Early Neolithic. Those are, however, signs of rather small-scale ‘cereal cultivation’ and of only limited animal husbandry. During the following periods, there are again and again traces of agriculture, nevertheless, human impact remains on a more or less low-level and does not generate any significant palaeoenvironmental changes. The palaeoecological record evidences some intensification in animal husbandry only during the second half of the Bronze Age, involving slightly higher degree in landscape openness and the utilization of wet meadows for grazing purposes. Crop cultivation, however, plays a minor role even up to the pre-Roman Iron Age.

According to the pollenanalytical data the establishment of a full farming community is taking place exclusively in the centuries AD, characterized by a general expansion and intensification of the land-use as verified by extensive forest clearances and fires, crop cultivation on permanent fields and the presence of open pastures as well as associated therewith advanced soil degradation 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.

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 paleoecology and the archaeological sciences, the ERC-funded FRAMEBUS project is currently investigating how small island communities managed to sustain such a precocious economic and culture in such a restricted ecological setting. New archaeological and zooarchaeological data has revealed the widespread importance of cereal agriculture and domesticated livestock in prehistoric Malta. Modelling the potential for soil erosion has revealed that technical mechanisms to manage the environment were developed by prehistoric agriculturists. But were there failures in the agricultural system, and what impact did this have? Shortly after 2400 cal BC, for example, there was an episode of cultural change – was this a consequence of social-economic mis-management, or environmental collapse? An overview of this research is presented in this paper, acknowledging the challenges that exist when comparing archaeological events with environmental data lacking chronological resolution.

TH5-14 Abstract 11
Environmental changes and agricultural systems in NW Iberia during the Middle and Late Holocene
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Keywords: Agricultural systems, Environmental changes, Middle and Late Holocene, Northwest Iberia, Carpathy
Presentation Preference - Oral

Interpretative approaches gathering archaeological and carpathological data with broad palaeoecological data can provide insights relevant on the relation between environmental changes and the evolution of human societies and their agricultural systems. Northwest Iberia stands as a good study-case since abundant palaeoenvironmental studies allow us to understand the major trends in climate, vegetation, erosion events and even atmospheric pollution during the Middle and Late Holocene. This diverse and profuse array of information provides an excellent data set to contrast with the regional archaeological and archaeobotanical records.
The main focus of this presentation will be the carpological data available for northwest Iberia, including unpublished material. Carpological data from late prehistoric and protohistoric sites allowed the identification of key-moments in agricultural history and the introduction of some crops and the development of new social-ecological systems. These key-moments include the Middle/Late Bronze Age (c. 1800 - 700/600 BC) and the Iron Age (700/600 BC to the 1st century BC) and correspond to significant changes in Human societies as suggested by data regarding the evolution of settlement, technology and agriculture, among other features.

Developments in storage facilities are also recorded. Especially, underground storage (pits), that proved to be an important strategy for long-term preservation. Moreover, the palaeoenvironmental records suggest significant changes on several levels such as vegetation cover, increasing erosion events occur as the result of anthropogenic deforestation to obtain farm land and pasture. Besides their clear differences, these two important moments revealed important economic and social changes. Human communities became sedentary and a process of territorialization took place, enhancing the connection between settlements in northwest Iberia, a region where good agricultural soils are not abundant.

In the first moment (Middle/Late Bronze Age), the oldest evidence of millet, (Panicum miliaceum), a spring crop, suggests changes in agricultural practices and territorial strategies. During the Iron Age, an agricultural system based on a diversity of crops, namely different cereals, existed. In particular, hulled wheat (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.

THS-14  Abstract 12  
The anthropization of the Cantabrian Mountains (NW Iberia) during the Later Prehistory  

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Keywords: Anthropization, Landscape Archaeology, Later Prehistory  
Presentation Preference: Oral

This paper attempts to provide a historical narrative that accounts for the biography of the cultural landscapes of the Western part of the Cantabrian Mountains based on a social interpretation of archaeological data and 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 itinerant forms of production and settlement. Later in the Bronze Age, the anthropization of the territory significantly increased, revealing a certain tendency towards the territorialization of human groups. The Iron Age implied the almost complete adoption of sedentarism 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.

THS-14  Abstract 13  
Human-environment interactions in the Alps: Archaeological and palaeoenvironmental approaches  

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Keywords: Alpes, Bronze Age, Pastoralism  
Presentation Preference: Oral
activity derived from palaeoenvironmental records. The study opens up new perspectives on this critical period in Irish prehistory and also illustrates the methodological and theoretical challenges of interpreting archaeological and palaeoenvironmental data.

TH5-14 Abstract 16
Land use and vegetal biodiversity in the Iron Age landscape of Brittany (France)

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Keywords: Iron Age Brittany (560 BC - 560 AD), 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 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 economy and land use patterns. The landscape of Brittany (North-Western France) during the Second Iron Age (500-350 BC) is selected as a case study. Compared to many other parts of Northwest Europe, Brittany is rich in high-resolution palaeobotanical data. These allow for the reconstruction of the main long-term trends in vegetal biodiversity, and more generally of the changing fabric of the Breton landscape. At the same time, increasingly detailed images of the Iron Age rural landscape of Gaul start to emerge due to a steep increase in archaeological data (aerial photography, surveys, programmed and development-led excavations). On the eve of the Roman conquest, the landscape of Brittany was dotted with numerous farmsteads and had a 'mosaic' vegetation structure. In this paper we 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, geotechnics, geochronology, paleobotany provided an opportunity to obtain conceptually new data on the location and operation pattern of winter and summer pastures and camps themselves.

To identify temporary camps, it is important to identify those land areas located in proximity to the camps where grazing was the most suitable at certain times of the year, taking into account natural features. For the winter season it has been demonstrated that deeply cut gullies with rather steep slopes facing south, south-west and south-east are most suitable for winter grazing, determining the existence of temporary winter camps in such areas.

The arrangement of summer temporary camps demonstrates a reverse pattern. It is assumed that summer camps and pastures were located near streams on open windswept watershed sections rather than near 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.
Keywords: Dendrochronology, Landscape changes, Vilnius Lower Castle
Presentation Preference - Oral

Forests are an important component of land cover in temperate climatic zones and deforestation is regarded as a major process in human induced landscape alternation here. Chief models estimating anthropogenic forest area changes are based on calculations of population history and the need of supporting cultivated land. Nevertheless, in some areas the need of forest products can overcome the need of agriculture resources of contemporary population. Large scale trade in forest products and extensive building activities intensify deforestation and cause bias in models based only on the population dynamics. Some corrections can be made by analysing landscape dynamics from the point of forest state dynamics. Tree growing conditions are recorded in the regularities of annual tree-rings and the history can be detected using dendrochronological methods if sufficient material is available.

The presented study aims to evaluate forest state changes in the geographic region around the Lithuanian capital Vilnius over second millennium CE. Large amount of archaeological constructions are preserved in cultural layers of Vilnius Lower Castle site and excavated during archaeological investigation. Pine timbers representing different centuries of the second millennium CE were analysed using dendrochronological methods. Several parameters were evaluated and compared with those in modern pine forests: age curve of tree-rings, i.e. regularity of tree ring width changes due to increasing age of trees, tree annual increment rate, and accumulation of charcoal in closed depressions and gulles within the catchment areas. Depopulation of the catchment area would, in contrary, cause the surface stabilization and either grassland or forest soil formation. The combination of pedological, ichnological, palinological, and archaeological studies was utilized to reconstruct the history of human occupation of 6 small watersheds in the second millennium on the East European Plain.

The sites with a good archaeological record were used to form "training sets" for our study. From 4 to 6 cycles of erosion and accumulation occurred in our study sites during theHolocene.

Each cycle began with fires, leading to the increase in run-off and accumulation of collateral fan deposits, and ended with the stabilization of the surface as grassland or forest was reestablished and an immature soil was formed. The cycles were correlated with the periods of human occupation of the catchment area known from the archaeological surveys and radiocarbon 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 fossils. Eight type assemblages were described in association with various types of forest fires, swidden cultivation, permanent fields, woodland pastures, and open (frequently burned) pastures. Some criteria were proposed to discern the utilization of gullies as roads and drowseys. 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 mult-proxy signature of each land use type.

Only a few of the multiple fire occurrences could be attributed to the natural forest fires, the others were associated with the land use practices. According to the radiocarbon dating of charcoal from the type assemblages, a combination of fire and grazing has triggered wide deforestation of potentially forested areas within the forest-steppe zone during the warm climatic phase of the middle Holocene (IV to III millennium BC, the Chalcolithic/Bronze Age). Small-scale deforestation associated with the swidden cultivation is dated here by VIII-XII cent AD. Frequent burning of potentially forested areas as means of maintaining grazing grounds did not begin until X-XI 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 entails 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.

TH5-14 Abstract 23
Following spits: Stone Age coastal adaptation and coastal morphology in the Narva-Luga region
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Keywords: Eastern Gulf of Finland, Holocene Stone Age, sea coast development
Presentation Preference - Poster

A model of coastal morphology development in Narva-Luga region at the Russian-Estonian border (south-east of the Gulf of Finland), in Middle and Late Holocene (5000-2000 cal. BC) was suggested basing on the last decade multidisciplinary studies. This model was improved and got chronological references basing on archaeological data – remains of Stone Age coastal settlements. Strict relations between sea shoreline and human settlements/hunting camps ended at the time of the first farming societies (Corded Ware tradition) appeared in the region.
TH5-15 Abstract 01
Extending the human provenancing repertoire: Neodymium isotopes

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Keywords: Human provenancing, Isotope
Presentation Preference - Oral

Recent developments in mass spectrometry have made it possible to explore the potential of new isotopic systems for the provenancing of humans, complementing the existing systems: strontium (Sr), oxygen (O), hydrogen (H) and lead (Pb). The addition of another isotopic system to the isotopic provenance repertoire can potentially provide us with more specific information on the region of origin and thus address some of the limitations that are still associated with the now commonly used isotopic techniques. This study reports on the viability of using neodymium isotopes (143Nd/144Nd) as a candidate to track the origins of humans. Due to the isotopic variations in the crust the samarium-neodymium isotope decay system has previously 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 t) resistors at the Vrije Universiteit Amsterdam. This study presents the neodymium concentration and composition results of third molars from modern Dutch residents. These results will be compared to other isotopic systems (Sr and Pb) and the possibilities for Nd as an archaeological human provenancing tool will be discussed.

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TH5-15 Abstract 02
Zinc isotope compositions of bone and dental enamel and their relationship to diet

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Keywords: Archaeological sciences, dietary tracer, non-traditional 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 biospecimen. 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 column chromatography and the Zn isotopic ratios were measured using MC-ICP-MS. The isotopic composition of traditional food tracers (t13C and t15N) 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.

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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

Palaeodietsary studies commonly analyse t13C and t15N ratios in archaeological bone to infer past dietary habits, although t15N ratios can be influenced by a range of factors other than diet (acidity, manuring, soil conditions, etc.). t18O ratios have also been shown to function as a trophic level indicator (Birchall et al., 2005; Reynard and Hedges 2008), which can be very useful to aid our understanding of the t13C and t15N ratios and improve our understanding of palaeodietsary habits and subsistence practices. Hydrogen in organsics 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 solids samples in the same run, which is essential to avoid scale compression. While this method is not novel (Bowen et al., 2005; Qi et al. 2010; 2013), its application with the use of QI et al. 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 t18O ratios from the non-exchangeable hydrogen fraction. Birchall et al., 2005. Rapid Comm. In Mass Spectrometry 19.

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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 biomaterial used in the reconstruction of palaeoenvironment and palaeodiet. It records information about the animal’s environment and diet on a sub-annual scale and is proven to be highly resistant to diagenesis, allowing the preservation of its original chemical composition through archaeological and geological timescales. In this study, stable carbon and oxygen isotope analysis are used as a stepping stone to investigate the use of other chemical proxies for the reconstruction of environment and diet from mammal teeth. Concentration profiles of trace element distributions (measured with μXRF and cross-validated with Laser Ablation ICP-MS) and stable isotope ratios (δ13Capat, δ18Ocat & δ18Oapat) are combined to test the reliability of trace element profiles from mammal teeth in recording seasonal changes in environment and diet of the animal.

A method is presented that links the various geochemical records within a tooth sequence using mineralization sequences and oxygen isotope seasonality. This way, a 3-year trace element and stable isotope record from horse tooth enamel is created showing seasonal variation in trace elements and isotope ratios linked to changes in climatic conditions and diet through the animal’s lifetime.

This study shows how an entire new set of trace element proxies, that can be measured quickly and non-destructively, may yield information on palaeoenvironment and palaeodiet. These trace element measurements yield information from precious archaeological samples that could otherwise be obtained solely through destructive sampling. The versatility of the μXRF and LA-ICP-MS methods opens up a wide range of applications for trace element analysis in archaeology.

TH5-15 Abstract 05
The geochemical relationship between soil, plant and streamwater: implications for migration studies

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Keywords: Geographical discrimination, Multi-element composition, Strontium isotopes

Presentation Preference - Oral

Strontium isotopic (87Sr/86Sr) and rare earth element (REE) analyses of rock, the leachable fraction of soil, plant and surface waters are applied as chemical proxies to assess chemical reservoir interactions, element bioavailability and geographic variability. These processes are the basis for geographic discrimination and associated archaeological provenancing. 53 biosphere samples were collected from a small geographic area in Co. Meath, a region of Ireland that has highly variable bedrock and surficial geology and hosts significant archaeological sites including, Newgrange, the Hill of Tara and Knowth. These multi-element and isotope geochemical data geochemically constrain this region and the high degree of spatial variability in 87Sr/86Sr highlights the inherent requirement for high-density sampling in order to isotopically characterise distinct reservoirs. The results of this study provide a baseline of biosphere 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 (<100 μm) and short processing time, large sample sizes can be analysed in great detail. In turn, it allows us to analyse exploitation and accumulation patterns of the Farasan islands in more detail. More specifically, this study aims to answer questions regarding (1) how many 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 glasses was coloured with Cu and Mn. Pale coloured glasses having varying Mn to 1.9%, suggesting that they were intended to be coloured. Colourless bottles can be divided into three groups: Mn-, Sn- and mixed Mn-Sn-decoloured glass. All Mn-decolourised, pale and strongly coloured vessels have closely similar base glass compositions to glasses from the tank furnaces, suggesting local production and working. The Sn-decoloured glass was made from a different sand source with higher SiO and lower Al2O3 and CaO. Mixed Mn-Sn-decoloured glass has intermediate compositions, suggesting they are the result of recycling. Sr and Nd isotopic analyses confirm the different primary origin of the Sn-decoloured glass. The isotopic signatures of the other glasses correspond well to those measured in some of the Lebanese sands, suggesting they were indeed produced locally.

1 S. Jennings, Vessel glasses from Beirut (Bey 006, 007 and 045), Berytus Archaeological Studies 48-49, 2006.
3 P. Poitrasson,微量元素在青铜时代的使用：对古代青铜器的同位素和元素分析，Chemical Geology 222, 132-147.

TH5-15 Abstract 10
Iron isotopes as a new tool for ancient metal tracing: comparison with classical tracing methods

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Keywords: Ancient metals, Iron isotopes, Provenance studies
Presentation Preference - Oral

The development of precise and accurate analytical techniques over the last decades has allowed the range of methods for ancient metal tracing. Elemental and isotopic analyses are now widely used for this purpose. For a relevant archaeological interpretation, metallurgical processes must be taken into account, and analyses must be performed on archaeological ore, slag and metal. So far, isotopic methods were rather employed for non-ferrous metal tracing (e.g. 4), whereas elemental analyses were used for ferrous metal tracing (e.g. 5). However, current use of elemental and isotopic methods show limitations, which underline the need to develop new tracers to complement existing ones. We used Fe isotopes as a new tool for ancient metal provenance studies. Isotopic ratios 57Fe/56Fe and 56Fe/54Fe were measured using a MultiCollector Mass Spectrometer after sample dissolution and Fe purification. We first developed this approach by analysing compositions from archaeological specimens 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 isotopic analyses.

Our results show that the Fe isotope process does not induce Fe isotope fractionation, i.e., the signature of metals and slags reflect that of their corresponding ores. Moreover, Fe isotope analyses tend to confirm the provenance hypothesis of ancient artefact established with trace elements analysis of slags. The results obtained so far suggest that Fe isotopes are a relevant tracer for archaeological materials, which can be applied to ferrous metals. The comparison of the more classical involving trace elements or Pb isotopic analysis could allow to refine previous provenance hypotheses of ancient metals.

3 P. Poitrasson,微量元素在青铜时代的使用：对古代青铜器的同位素和元素分析, Chemical Geology 222, 132-147.
4 F. Poitrasson and M.R. Freyfogle, 2005, Heavy iron isotope compositions of granites determined by high-resolution ICP-MS, Chemical Geology 222, 132-147.

TH5-15 Abstract 11
Iron Slag and the Quest for Provenance

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Keywords: Iron, Provenance
Presentation Preference - Oral

Over the past few decades our growing ability and competence in determining the provenance of archaeological artefacts using scientific methods has been one of the most exciting developments in the field of archaeological science. However, when it comes to iron and attempts to determine its geological origin, more questions than answers have been posed. The 3-year research project launched by Uninett centre based at the University of Aarhus is facilitating the collaboration of geologists and archaeological researchers 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 petrographical, metallographic, elemental and isotopic analyses in order to determine the validity of methods and the feasibility of further analyses. Theoretical aspects 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.
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. These could be many ways of using these data. Recently, during the study of copper objects, it has been noticed that there is a pattern of particular concentration of heavy elements traces in specific parts of objects from Early Bronze Age Anatolian contexts. After some speculations, it may be possible to hypothesise that these concentrations are due 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 Dūkštelis 1 site**

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**Keywords:** Early Mesolithic and Neolithic-Bronze Age, Geochemical and LOI analyses, Human inhabitation

**Presentation Preference:** Poster

In 2013 an archaeological investigation of the first inhabitance of River Neris basin in Lithuania has been initiated. As a part of the research, a newly discovered prehistoric site Dūkštelis 1 on the lake Dūkštelis shore (Eastern Lithuania) was excavated in order to gather some new archaeological data for comparison with the material from other prehistoric sites in River Neris basin, and also to gain additional knowledge about the first inhabitants in this region. After excavating 100 m² of the site structures were uncovered which, according to the first artefacts typology, correspond to Early Mesolithic or Neolithic-Bronze Age. Also the new palaeobotanical and geochemical data on Dūkštelis Lake bottom deposits indicated at least two episodes of human inhabitation at the lake shore.

In order to reveal the functional use of the prehistoric settlement elements, two structures were chosen for closer study – a probable hut and a hearth. The research was interdisciplinary, together with archaeological methods of investigation – examination on the distribution of the finds (find tools and their processing refuse, burnt bone, charcoal pieces, ceramic fragments) and their correlation with the two structures – several natural science methods were used to make a research on the content of the structures. Ground flotation and microscopic bioarchaeological research was done in order to find macro-botany remains that could reveal some details about prehistoric people diet. Geochemical analysis and loss on ignition method (LOI) were also used to find out if there are any elements significant for interpretation but undistinguished during the archaeological excavation.

The samples for geochemical and LOI analyses were collected from the structures as follows: in the middle of the structure, 20cm from the centre and in periphery. It was presumed that the latter represented less disturbed soil. Determination of major and trace elements Al, Ba, Br, Ca, Cr, Cu, Fe, Ga, Y, K, Mg, Mn, Na, Nb, Ni, P, Pb, Rb, Si, Sr, Ti, Zn, S was done using energy-dispersive x-ray fluorescence SpectroXeops equipment and the Turbotronic 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 Dūkštelis 1 site.

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**TH5-16 Abstract 01**

**Forging a Fenland framework: contextualising palaeoecology & environmental change in UK Fens & beyond**

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**Co-author(s)** - Whittaker, Nicki, University of Plymouth, Plymouth, United Kingdom

**Keywords:** Contextualising wetlands, East Anglian Fens, Environmental change

**Presentation Preference:** Oral

Environmental data is one of wetland archaeology’s most important data types. The palaeoecological significance of these often well-preserved remains cannot be denied. Often lacking on dryland sites, they provide information on past economies and subsistence, and allow detailed reconstructions of human-environment interaction. Despite this, the results of palaeoecological research on wetland sites do not always impact beyond the sub-discipline of wetland archaeology, which remains somewhat isolated from mainstream archaeology. If palaeoecological studies of wetland sites are to contribute to our general understanding of animal husbandry, agricultural developments or environmental change at various spatial and temporal scales, wetland archaeologists must contextualise wetland sites in a broader chronological and geographical framework.

This paper will argue that in order for the invaluable insights from palaeoecological studies on wetlands to be informative on more than just the local (wetland) site level, environmental data sets need to be compared across various wetland and dryland sites and regions. In this way, high quality wetland palaeoecological research can impact significantly beyond the sub-discipline of wetland archaeology. These issues will be discussed by considering Bronze Age environmental change in the Flag Fen Basin in the East Anglian Fens (UK) and beyond. Individual wetland sites like the newly discovered Bronze Age settlement at Must Farm will be placed within a larger (regional) (East Anglian), national (UK) and international (north-western European) context. This will demonstrate how we may integrate short-term events and lived experiences of environmental change at the local level with longer-term ‘global’ developments.

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**TH5-16 Abstract 02**

**Late Holocene multiplex palaeohydrological and archaeological records from Littleton Bog, Ireland**

**Author** - Dr. Staunton, Phil, University of Reading, Reading, United Kingdom (Presenting author)

**Co-author(s)** - Young, D. S., University of Reading, Reading, United Kingdom

**Keywords:** Multiple palaeohydrological and archaeological records from Littleton Bog, Ireland

**Presentation Preference:** Oral

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 Dūkštelis 1 site.
This presentation reports on the results of multiproxy palaeoenvironmental investigations carried out in association with archaeological survey and excavation of later prehistoric wood-trackways at Littleton Bog, Co. Tipperary, Ireland. The site has a long association with palaeoecological research in Ireland, beginning with pioneering work carried out by Frank Mitchell at Littleton in the 1950s and 1960s that has provided a basic framework for the vegetation history of Ireland still in use to this day. Mitchell’s palynological work emphasized the significant effect that past human societies have had on shaping environments in Ireland, and hinted at complex interrelationships between environmental change and human activity. The archaeology of Littleton Bog, now a drained and milled peat production site, was surveyed in 2008 and this was followed by targeted excavations carried out in 2008 in advance of peat extraction; excavation revealed over 30 archaeological features, mostly wooden trackways, of which two features have radiocarbon dates ranging from the Early Bronze Age (ca.3500 cal BP) to the Iron Age (ca.2000 cal BP). A high-resolution multiproxy palaeoenvironmental record from the site was developed to provide palaeoenvironmental context for the rich archaeological record, and to assess the interactions between human activity and past environmental change at the local scale. This record, spanning from ca.4000 cal BP onwards, comprises testate amoebae, plant macrofossils, pollen, diatoms, and pollen data. The testate amoebae, plant macrofossil and humification-derived bog surface wetness (BSW) records show broad agreement, but comparisons with recent 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 clearer, 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 autogenic and agrogenic environmental change and human activity.

TH5-16 Abstract 03
A 8000 years history of climate and environmental change in South Greenland
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Keywords: Lacustrine record, Multi-proxy, South Greenland
Presentation Preference - Oral

We propose here a synthesis about the Holocene environmental history of South Greenland, with a focus on the last millennium. Well dated lacustrine records and a suite of biological and physical proxies (pollen, non-pollen palynomorphs, 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 (895-1450 AD. – Medieval Warm Period) in South Greenland. From 8000 to 4000 cal BP, vegetation was characterized by a juniper and willow cover growing on poor soils. From 4000 to 3500 cal BP, the vegetation was dominated by birch and willow. From 3500 to 2000 cal BP, the vegetation was dominated by birch and willow and the regrowth of willow and birch and the disappearance of anthropogenic indicators between the 15th and 19th century demonstrate the abandonment of settlement, until the development of contemporary agriculture in the 20th century. Recent agricultural activities (1920-1980 AD) had the same impact than Norse agriculture. However, the biological and sedimentological response to the last 30 years of modern sheep farming is marked, with drastic changes in diatoms and chironomid taxa, faunal molecular markers and C and N isotopes.

TH5-16 Abstract 04
Reconstructing cattle management in Neolithic Switzerland using multi-isotopic analysis
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Keywords: multi-isotopic analysis, cattle management
Presentation Preference - Oral

The lakeshore 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 Blöcke 3 at Lake Constance. The lower Lake Zurich basin is an archaeological micro-region that permits the study of a long chronological sequence of more than 2000 years, while Arbon Blöcke 3 is a single-phase settlement with a fifteen-year long occupational phase (3384–3370 BC) providing the opportunity to capture a ‘snapshot’ in time. All sites investigated have provided vast and well documented cattle bone collections. We applied strontium, oxygen, carbon and nitrogen isotopic analyses to those remains to gain insight into strategies of animal management. Key questions were: Were cattle kept in or near the settlements or were they pastured further away? Where are potential pasture grounds? Is there evidence of regular mobility, maybe linked to seasonally varying patterns of alpine summer pasturing? On which level was cattle herding organised (household, village, networks between villages)?
TH5-16 Abstract 06
The Early Iron Age ‘lake village’ at Black Loch of Myrton

Author - Dr. Cavers, Graeme, AOC Archaeology Group, Loanhead, United Kingdom (Presenting author)
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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 built lake 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.

Presentation Preference - Oral

TH5-16 Abstract 07
Investigating Iron Age lakeside settlements within their palaeoenvironmental context

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Palaeoenvironmental methods offer the opportunity of retrieving information from a range of proxies around lakeside settlement usage that would otherwise be difficult to obtain without excavation and can augment studies where excavation is possible. These methods also allow us to place these sites within a wider environmental context which can aid our understanding of local and regional conditions across the time period in question. Sediments are retrieved both on and adjacent to, these structures and can be analysed for ecological, biological and environmental data.

Here, we present palaeoentomological data, in particular Coleoptera (beetles) and Chironomidae (non-biting midges), from archaeological excavation deposits and parallel lake core sediments from Black Loch of Myrton, Scotland. This Iron Age lochside settlement consists of a small number of structures constructed on peat/fen material at the margins of a small, productive loch. The main aim of the work is to inform our understanding of living conditions on the site, any associated impacts upon the nearby lake system and explore the wider implications for our understanding of lakeside settlements of this period. Beetle remains provide an understanding of both the environmental conditions across the site and on-site activities. Analyses indicate beetle and fly remains, ectoparasites (e.g. fleas), characteristic of decomposing floor litter layers and less than salubrious living conditions. Changes in C:N ratios from the parallel lake core indicate a shallow, productive lake system showing nutrient changes over long timescales, and highlight the effects of lake settlement construction on the adjacent small lake system. Results are compared with other lakeside sites and crannogs of comparable situation to provide an over-view of living conditions associated with these types of site.

The results of the work form part of a larger project that uses, palaeoecological, biogeochemical and aDNA analyses to study crannog and lakeside sites across Ireland and Scotland to study patterns in construction, function and longevity of these monuments, across wider geographical scales. The Celtic Connections and Crannogs project, funded by AHRC, sets out to re-examine crannogs as both a cultural and environmental phenomenon that link Iron Age and Medieval communities of SW Scotland and N Ireland.

Presentation Preference - Oral

TH5-16 Abstract 08
How could Crannogs impact on lake environments?

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Cranogs, or artificial islands, were constructed during the Iron Age to Medieval period throughout Scotland and Ireland. At least 1500 crannogs are recognised, but little is known about their longevity and continuity of use, and they are difficult and expensive to excavate. An alternative, or compliment to excavation is to assess these questions through the impacts of crannog construction and use on adjacent lake sediments. However, it is unclear what the impact of crannog construction and use has been on lake environments.

Using sediment cores we investigate crannogs in ten lakes and one archaeological site. The cores will be analysed for loss-on-ignition, stable carbon and nitrogen isotope, and high-resolution XRF spectroscopy to highlight input of clay, gravel, and stones from crannog construction.

Presentation Preference - Oral

TH5-16 Abstract 09
From the lakeshore: settlement and technology in the later Mesolithic

Author - Hill, Geoffrey E., School of Geography, Archaeology & Palaeoecology, Queen's University Belfast, Belfast, United Kingdom (Presenting author)
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Keywords: Lough Kinale; crannog; beetles

Excavations undertaken under the aegis of the Discovery Programme, Dublin (www.discoveryprogramme.ie) between 2013 and 2015 on the shores of Lough Kinale, Co. Longford, Republic of Ireland, uncovered a well preserved Late Mesolithic (~5000-4500 cal BC) platform crannog.

This lake-side site is one of very few wetland archaeological occupation sites in Ireland that extends over the Mesolithic-Neolithic transition. The site consists of a series of constructed brushwood layers with intermediate paste lenses built beside, or into, the adjacent lake, with up to five different occupancy phases. Within these layers are a variety of archæological features, including upright stakes, wooden ‘planks’, hearths, and abundant lithics (Frederengren, 2010). Bioarchaeological investigations of the site have been undertaken as part of a DEL NI-funded PhD research project. Results from fossil beetle and dung fungal spore analyses suggest the presence of structures maintained over the Late Mesolithic phases of the site’s usage. Synanthropic beetles typically associated with thatching and/or bedding materials indicate the persistence of dry, sheltered areas across the site. This evidence is significant and challenges assumptions about the nature of late Mesolithic settlement in Ireland (Woodman, 2009). 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 restocking 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.
TH5Science 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 changes (plant DNA), agricultural activities (plant, mammal and bacteria DNA) as well as the human presence (human-specific bacteria DNA). However, as all sedimentologists know, the sedimentation in a lake can vary temporally and spatially depending of the variations of processes at the origin of the sediment formation. Moreover, depending on the 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 metagenomics 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 mainy comes from upper soil horizons and is transported to the lake being fixed into/onto soil particulates. Lakes with high detrital inputs are thus more suitable to archive terrestrial DNA than lakes dominated by autochthonous sedimentation. Furthermore, the hydrographical web has to be well developed to provide a good spatial representativeness of possible plant patches in the catchment. Specific chemical/biological conditions affecting aDNA preservation and/or analysis success were also proposed as explanation for the non-detection of aDNA in one of the lakes. Other less predictable factors, e.g. pastoral practices and animal behaviour, also affect the archiving of aDNA from domestic animals. In particular, determining the type of source of DNA (“point” vs “diffuse”), these factors will affect the detection probability of the animals. All the factors affecting the aDNA record in lake sediments can change over time and can thus significantly affect the reconstructions of plant cover and livestock farming/pasturing histories.

References


TH5-16 Abstract 11

Lake sediment DNA to trace past landscape and agricultural activities: the importance of taphonomy

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Keywords: Agriculture, lake sediment DNA, taphonomy

Presentation Preference - Oral

During the last decade, an increasing number of studies were interested in the use of lake sediment DNA to trace past landscape changes (plant DNA); agricultural activities (plant, mammal and bacteria DNA) as well as the human presence (human-specific bacteria DNA). However, as all sedimentologists know, the sedimentation in a lake can vary temporally and spatially depending 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 metagenomics 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 mainy comes from upper soil horizons and is transported to the lake being fixed into/onto soil particulates. Lakes with high detrital inputs are thus more suitable to archive terrestrial DNA than lakes dominated by autochthonous sedimentation. Furthermore, the hydrographical web has to be well developed to provide a good spatial representativeness of possible plant patches in the catchment. Specific chemical/biological conditions affecting aDNA preservation and/or analysis success were also proposed as explanation for the non-detection of aDNA in one of the lakes. Other less predictable factors, e.g. pastoral practices and animal behaviour, also affect the archiving of aDNA from domestic animals. In particular, determining the type of source of DNA (“point” vs “diffuse”), these factors will affect the detection probability of the animals. All the factors affecting the aDNA record in lake sediments can change over time and can thus significantly affect the reconstructions of plant cover and livestock farming/pasturing histories.

References

The Bronze Age of Eurasia (around 3000–1000 BC) was a period of major cultural changes. However, it has been debated for decades if the major cultural changes that occurred during this period resulted from the circulation of ideas or to which extent they were accompanied by human migrations. To investigate these questions, we sequenced low-coverage genomes from 101 ancient humans from across Eurasia. We show that the Bronze Age was a highly dynamic period involving 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.

**What ancient DNA can tell us about the origin and spread of Indo-European languages**

Authors: 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 distinct population of eastern hunter-gatherers with affinity to Palaeo-Eskimo Siberians. The Middle Neolithic saw a resurgence of hunter-gatherer ancestry throughout much of Europe, while the contemporaneous Yamnaya pastoralists of the Russian steppes shared about half of their ancestry with the preceding eastern European foragers and the other half with Caucasian hunter-gatherers. This Yamnaya-like steppe ancestry arrives in Central Europe ~4,500 years ago, as Late Neolithic Corded Ware individuals traced ~75% of their ancestry to the Yamnaya, and is thus a good temporal fit for the steppe hypothesis, which proposed a spread of Indo-European languages via the steppes starting from a proposed homeland north of the Black Sea. This third ancestry component persisted until the present-day in all Europeans and documents a (second) major expansion into Europe from its eastern periphery. The accompanying genetic turnover was high enough to support a language replacement, a criterion that was previously suggested to only apply to the language-farming dispersal hypothesis in the light of the Meso-Neolithic transition. As a consequence, these ancient DNA results have direct implications for the spread of Indo-European language groups and at the same time provide supporting evidence for the stepping stone model 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.

**Scandinavian Bronze Age rituals, and their Indo-European background**

Author: Prof. Anders, Kallest, 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-Europeans, results that fully support the ideas of Indo-European spread by migration. Far hundred percent proof that this migration really brought languages, is missing still, of course, but it could be assumed with almost 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 alloforms, that is, alternative guises of each other. As
regards both fire-sacrifice, and also cremation, the link to homology is evident. One significant example is the Vedic fire-rituals (including cremation of the dead), that are performed as repetition of the creation and has a deep cosmological significance. This cosmology, with its parallels in several Old Indo-European religions, including for instance the Old Persian (Zoroastrian) religion, Old Baltic, Germanic and Old Norse beliefs had a fundamental impact on the eschatological beliefs, and accordingly on the burial rituals. Flesh and earth, for example, are considered to be of the same material substance and can thereby be transformed into each other. In the same way, bones, the hard part inside the soft flesh, are equated with the stones in the earth and with rocks and mountains, while hair is associated with plants. Life consists of a limited number of elements from which everything is composed. My paper will discuss this with focus on finds from some recently excavated ritual places in eastern Sweden, and interpret the finds in the light of a broader Indo-European background. I will use the Old Vedic ritual system as one important comparative, and also focus on a discussion of the interpretations in the light of the new results from ancient DNA studies.

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TH5-17 Abstract 05

Can scholars envisage a Baltic Origin of Homer’s Epic Tales?

Author - Prof. Bandelli, Giuliana, Università Cattolica del Sacro Cuore Milano, Milano, Italy (Presenting author)

Keywords: Bronze age, Homer, Metal working around the Baltic Sea

Presentation Preference - Oral

According to a recent challenging hypothesis by the scholar Felice Vinci, the real setting of the Iliad and the Odyssey can be identified not as the Mediterranean Sea, where it proves to be undermined by many incongruities, but rather in the North of Europe. The sagas that gave rise to the two poems came from the Baltic regions, where the Bronze Age flourished in the second millennium B.C. and where many Homeric places (Troy, Ithaca, Fier) 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 Achaean fleet, according to the Iliad, gathered before sailing for Troy. As regards the Baltic Republics (Estonia, Latvia, Lithuania) there are many convergences with Greek mythology. The blond Achaean who founded the Mycenaean civilization in the Aegean in the 16th century B.C. brought these tales from Scirocriciarea to Greece after the end of the “post-glacial climatic optimum”. They then rebuilt their original world – where the Trojan War and many other mythical events had taken place – farther south in Mediterranean waters, transferring significant names from north to south. Through many generations, they preserved the memory of the heroic age and the feats performed by their ancestors in their lost homeland; and this oral tradition was put in writing around the 8th century BC, when the alphabetical writing was introduced in Greece. According to Felice Vinci’s theory, both the Homeric poems and the rest of Greek mythology are the last memory of the facts and events happened in the lost Nordic 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 Bjasamon, near Hernosand.

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TH5-17 Abstract 06

The Settlement System of Pit-Grave Culture of Central Ukraine

Author - Syvopal, Mykhaylo, Chernivtsi Archaeological Museum, Chernivtsi, Ukraine (Presenting author)

Keywords: Conclusions of the 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 peninsulas) in wide floodplains of the Dnieper River and its tributaries. The Desiatyny type settlements have a relative thin (0.4-0.7m) and a rich archaeological layer (up to 100 finds per 1m²). Small (0.1-0.3ha) and poor in relics (1-10 finds per 1m²), temporary sites have been found in 2) floodplain sites (peninsulas often near basic settlements) and under the conditions of high topography: 2b) at the top of watersheds but next to a water source; 2c) on the high bank terrace of small rivers of the 2nd and 3rd order; 2d) on the low promontories of small rivers. The last subtype is more known in a number of other territories of the Pit-Grave culture, though the watershed subtype is a new one.

The data derived from the study of these settlement relics suggests that the Pit-Grave population of the Middle Dnieper Area practised transhumance, insignificantly complementing their diet with the help of fishing, hunting and food gathering. The vast majority of the population lived in basic settlements, located on the floodplain sites in complexes of 50 to 100 persons (but 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, whereas women, children and old people remained in the basic settlements.

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TH5-17 Abstract 07

Back to square one? The legacy of Marija Gimbutas (Gimbutas) in the light of recent DNA findings

Author - Dr. Markyty, Inga, Vircum, Denmark (Presenting author)

Keywords: Gimbutas/Gimbutas, Migrations, Steppe cultures

Presentation Preference - Oral

Recent aDNA findings seem to pinpoint a massive migration from the steppe area towards Central Europe occurring around 4500 years ago (Haak et al. 2015, Alfoldi et al. 2015). Genetic studies are usually taken as evolutionary histories from the past, and are used in temporal dating references. Paradigmatically they rather produce a series of snapshots without the possibility of statistical uncertainties of applied dating methods and a still very limited dataset, analyzed with the help of mathematical models. Thus archaeology more than ever is challenged by the questions of why and how. The paper aims to reflect upon Marija Gimbutas legacy in the Indo-European debate, how she saw the instrumentation of human movements and mixing, also with reference to other contesting thoughts.

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TH5-17 Abstract 08

Archaeological Modeling of the Spread of Indo-European Traditions in Late Prehistoric Eurasia

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

Keywords: Archaeological Modeling, Demography, Indo-Europeans

Presentation Preference - Oral

Echoes of Marija Gimbutas’ highly influential research still permeate the more recent work on the spread of the Indo-European languages. The current work focusing on the homeland of the Proto-Indo-European languages aims to understand the multiple efforts that are focused on how culture history and change might be best applied to the multi-dimensional, and subsequently multi-disciplinary, nature of the problems inherent in research on the Indo-Europeans. While much of the discipline of archaeology has levied trenchant critiques against the broad brush strokes of history culture, recent Indo-European scholarship shows little to no overt interest in the updated, and now commonplace, theoretical approaches in archaeology.

This paper seeks to provide more nuanced understandings of event and process into archaeological inferences about the prehistory of the Indo-Europeans, with a primary focus on how populations aggregations breakdown and disperse. Current efforts in the study of Indo-Europeans have focused on individuals or small groups including: sharper focus on the genetic make-up of individuals, specific burial, and specific words associated with ancient concepts with corresponding instances or appearances of material culture. Despite the numerous reviews of the Eurasian steppes and Central and Eastern European archaeological material, a sustained inquiry into middle-range demographic and socio-political processes has yet to be implemented. To accomplish this, I present a preliminary demographic model that seeks to account for the socio-political, spatial, and temporal nuance that have been and remain crucial to anthropological and sociological studies of culture. Through an integrated methodology comprised of demographic, spatial, and statistical analyses, as well as a new theoretical approach - the afterlife of population aggregations - I explore some of the contributing socio-political and demographic factors in the dispersal and adoption of the material, linguistic, and symbolic traditions often attributed to the spread of Indo-European cultural groups.

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TH5-17 Abstract 09

Indo-Europeans in the East Baltic Region. A new data and old problems

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Keywords: Celts, Indo-Europeans, Linguistics

Presentation Preference - Oral

The origin of Corded Ware culture, which is associated with Indo-Europeans in Central and Northern Europe has disputed for almost a century. Two major explanations have been proposed, a massive migration of Yamnaya or Pit Grave culture people from the Pontic-Caspian steppes, or locally initiated changes. According to M. Gimbutas (1991), a massive infiltration of Kurgan people from the steppe areas initiated cultural changes in Central and Northern Europe. However, other archaeologists suggest that several
smaller innovations or gradual local changes played the main role in the cultural transformation of a very wide region (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 Steppe. The Scandinavian perspective

Author - Prof. Randilborg, Klaes, 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. Childe in the 1920s and later elaborated by M. Gimpilsec (Gimbutas, among many others). Recent ancient human genome studies (DNA) have added new dimensions to the old debate.

By suggesting that the Indo-European languages in Europe were introduced from the East, at the latest by 2500 BC, a number of 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. Rennwe’s viewpoint of the 1980s was that the first Indo-European languages arrived with and developed in Europe among the first people carrying out Neolithic farming and rearing of domesticated animals (Rennwe 1987). This idea has a ring of simplicity when it correlates with the basics of archaeology: Neolithic expansion from the Near East and Anatolia to southeast Europe extended to Central Europe and later on to the North, with a parallel Neolithic expansion from Anatolia to the Mediterranean and on to Western Europe.

The paper examines the archaeological elements of possible Steppe origins in Scandinavian Neolithic and how these correlate with the aDNA findings.

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TH5-17 Abstract 11
The introduction of Indo-European in the later South Scandinavain Neolithic

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Co-author(s): Kroemer, Guss, University of Copenhagen, Copenhagen, Denmark. 
Keywords: Corded Ware, Indo-European, Proto-Neolithic
Presentation Preference - Oral

With the exception of Basque, Finnish, Estonian, and Hungarian, the modern linguistic landscape of Europe is almost entirely shaped by a single language family: Indo-European. This perhaps surprising linguistic unity is likely the result of a prehistoric cultural expansion that erased almost all previous languages. By the dawn of history, Europe had at any rate become covered by a patchwork of Indo-European dialects - that is Germanic, Celtic,Italic, Baltic, Slavic, Albanian, Armenian, and Greek. These formed the seeds from which 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 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 2850 B.C.E early Corded Ware (Single Grave) societies appeared on the Jutland Peninsula introducing among other things new burial customs, new pottery shapes, new amber ornaments, and new types of stone battle-axes.

The third millennium B.C.E was, no doubt, a period of great material and cultural changes and language must not be ignored when considering these. Instead, language must be viewed and treated as a deeply integrated part and facilitator of the transmission of new ideas, cultural processes and substance economic and material changes. This paper draws on evidence of change in both material culture and in language that took place in the third millennium B.C.E and combines these evidence into a unified hypothesis on when and how Indo-European language was introduced into northern Europe and southern Scandinavia. After being introduced together with Corded Ware features in central and western Jutland it seems that the implementation of Indo-European happened gradually via long-term cultural transformation processes.
The aim of this study is to analyze the ancient DNA and to identify the haplogroup, presenting also the first results obtained on samples extracted from a Late Bronze Age funerary context discovered in Eastern Romania and to identify an efficient and reliable protocol for aDNA extraction. To test whether the protocol is efficient and capable of yielding good quality DNA, extraction was first performed by using the phenol:chloroform protocol and DNA IQ protocols. The funerary context from Tarnia, Bacau county, was discovered in 1972 and consists in a pit in which was discovered a human skeleton in a left supine position. The left hand was flexed and sustain the skull while the right hand was flexed and slightly lodged on the pelvis and the legs were strongly bent on the left side. The osteological remains were in a poor state of preservation. The burial contains two vessels as grave goods which were attributed based on their typological characteristics to the Noua culture (Late Bronze Age).

The sequences were subjected to Nucleotide BLAST (Basic Local Alignment Search Tool, Altschul et al., 1990) to identify the similarities with the previous sequences from database and haplogroup assignation. The T72 sample 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.

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.

As raw material movement affects the whole continent, we hope to attract scholars from north to south and from east to west. In this presentation I aim to assess the development of local metallurgy, focusing on alloys and any technological clue present in the archaeological record, in order to understand the role of local artisans in introducing metals in the region. The preliminary results show that the lack of raw material locally could have played some role in delaying access to the new material, but the most likely reason is some form of control of the new technology, which may be deliberate or accidental. There is no evidence of traveling artisans that could spread the technology or produce demand for the new material by making it known, and Sicily being a large island at short distance from the mainland, it ended up fully embracing the technology unusually late in spite of the raw material circulating and being mined not far from it. This case study therefore reveals how the movement of artisans, and their technological know-how, was far more important than the availability of the raw materials in the vicinity: you cannot make metal artefacts if you do not know how.
THE6-01 Abstract 02
What’s new? The first bronzesmiths in southern Scandinavia
Author: - Prof. Stolåk, Joanna, University of Southampton, Southampton, United Kingdom (Presenting author)
Co-author(s): - Mannering, Ulla, Nationalmuseum of Denmark, Copenhagen, Denmark
Keywords: artisanal tradition, bronze casting, Late Neolithic
Presentation Preference - Oral
The question of craftspersons and their role in prehistory has been discussed in many different ways and from different theoretical perspectives. In my thesis The Artisanal perspective-an archaeology in practice (2016) I have described how artisanship can be the reason for moving material and or techniques around large geographical distances. Learning and sharing knowledge develops new links between people. These circumstances might be the departure for ancient artisans to leave the known area and try new paths.
I use and widen artisanal knowledge to interpret artefacts based on my own tacit knowledge as an educated professional. 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.

THE6-01 Abstract 03
The Settlement Aglomeration in Mikulovice, Eastern Bohemia
Author: - Dr. Erneke, Michal, Institute of archaeology, Prague, Prague, Czech Republic (Presenting author)
Co-author(s): - Langov, Michal, Institute of archaeology, Prague, Prague, Czech Republic
Keywords: Amber Road, EBA, Nodal point
Presentation Preference - Oral
The issue regarding the interregional and long-distance connections, networks, exchange, trade and mobility of people and objects in the Bronze Age has been intensively discussed throughout Europe. The newly excavated Early Bronze Age inhumation cemetery with approximately 100 graves in Mikulovice (eastern Bohemia) at which 30 % of the graves contain imported “exotic” and highly valuable commodities such as Baltic amber in hundreds of pieces, sea shells, gold, bronze, is positioned directly on the important long-distance route, the so-called “Amber Road”. Extraordinary in the context of the EBA period is a single female grave, which contained more than 420 amber beads, seashells and gold and bronze jewelry.
In addition to a complex analysis of the cemetery, a hypothesis should be verified, that the analyses of skeletons and artefacts from the cemetery situated on the “Amber Road” should reflect the anticipated greater mobility, long-distance contacts and a higher living standard of the members of the local population. Without doubt, this site offers an opportunity for a comprehensive study from the cemetery situated on the “Amber Road” should reflect the anticipated greater mobility, long-distance contacts and a higher living standard of the members of the local population. Without doubt, this site offers an opportunity for a comprehensive study.

THE6-01 Abstract 04
Local Responses to a Regional Aesthetic.
Production of Encrusted Ceramics in the Carpathian Basin
Author: - Prof. Szoboszlai, György, Lajos Kossuth University, Debrecen, Hungary (Presenting author)
Co-author(s): - Gulyás, Gabriella, Central University of Technology, Budapest, Hungary
Keywords: Bronze Age, Encrusted Ceramics, White Inlay
Presentation Preference - Oral
Encrusted ceramics are a visually striking group of objects characterized by the use of white inlay. They are found in the material repertoire of several prehistoric groups throughout Europe but are particularly prevalent in the Carpathian Basin where they form an important, long-standing tradition that transcends individual cultural units. However, although encrusted ceramics ostensibly look similar, our recent analyses have revealed significant variation in the production of inlays. They have also demonstrated local production at sites where encrusted ceramics have hitherto been considered imports. This paper considers the implications of this variation in terms of small-scale responses to a wider regional aesthetic - how to make the colour white - in a range of Bronze Age cultural groups in the Carpathian Basin.

THE6-01 Abstract 05
Transmission and transition, relationships between craft-knowledge and textiles across Europe
Author: - Dr. Andersson Strand, Eva, SAXO institute, Köpenhamn, Denmark (Presenting author)
Co-author(s): - Langov, Michal, Institute of archaeology, Prague, Prague, Czech Republic
Keywords: Europe, Textiles, Transmission
Presentation Preference - Oral
Recent research has clearly demonstrated that the movement of textiles and specific textile raw materials in northern Europe is more complex than hitherto known. Analyses have indicated that some wool in Scandinavian Bronze Age textiles is not local, coming from outside present day Denmark (e.g. Fri et al. 2015). It is likely that already in this period wool was being exchanged in Northern Europe, and trade in textiles and wool is well known in the Eastern Mediterranean in much earlier periods (e.g. Michel and Nosch 2017). However, the demand for a new raw material only arises to meet a need and desire in society. Use of a new textile raw material would, furthermore, require new artisanal knowledge. In this paper we will explore the implications of this with regard to textile fibres and cloth cultures in European societies.

THE6-01 Abstract 06
Understanding Bronze Age Life– from an Artisanal Perspective
Author: - PhD student Boldt, Kataina, 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 crafts knowledge”. Pryssgården 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.

THE6-01 Abstract 07
Transmission and transition, relationships between craft-knowledge and textiles across Europe
Author: - Dr. Andersson Strand, Eva, SAXO institute, Köpenhamn, Denmark (Presenting author)
Co-author(s): - Langov, Michal, Institute of archaeology, Prague, Prague, Czech Republic
Keywords: Europe, Textiles, Transmission
Presentation Preference - Oral
Recent research has clearly demonstrated that the movement of textiles and specific textile raw materials in northern Europe is more complex than hitherto known. Analyses have indicated that some wool in Scandinavian Bronze Age textiles is not local, coming from outside present day Denmark (e.g. Fri et al. 2015). It is likely that already in this period wool was being exchanged in Northern Europe, and trade in textiles and wool is well known in the Eastern Mediterranean in much earlier periods (e.g. Michel and Nosch 2017). However, the demand for a new raw material only arises to meet a need and desire in society. Use of a new textile raw material would, furthermore, require new artisanal knowledge. In this paper we will explore the implications of this with regard to textile fibres and cloth cultures in European societies.
The interplay between technology and geography in the development of trade networks

Author - Prof. Rivers, Ray, Imperial College London, London, United Kingdom (Presenting author)
Co-author(s) - Evans, Tim, Imperial College London, London, United Kingdom

Keywords: geography, networks, technology

Presentation Preference - Oral

The archaeological record shows that artefacts have been exchanged over huge distances at times in the distant past when such exchange must have been very difficult. In this paper we attempt to describe how these isolated and intermittent interactions can evolve into established trade networks.

Trade implies organised exchange in sufficient volume to provide a definable pattern. Most simply, the ability to conduct trade encodes two very different 'distance' scales: the 'distances' that traders need to traverse in order for the network to be robust (e.g. well-connected) and the 'distances' for which the available technologies permit the ready transportation of goods. As a shorthand, we term the former 'geographic' distance and the latter 'technological' distance. There is a symbiosis between the two: the technological improvements that make travel more reliable and viable encourage network growth, conditioned by geography, which exploits this ability to travel longer distances. We stress that by 'geography' we mean not so much Cartesian separation as a reflection of the 'ease' of exchange between sites and that the application of 'technology' (e.g. the wheel, pack-animals, sail) is conditioned by its ownership.

We shall argue that a simple characterisation of network dynamics can be made on the basis of the ratio of these distances. As time passes, improving technologies lead to a growth in technological distance. The establishment of 'trading' networks is necessarily constrained when technological distance is relatively small. At the other extreme, trading networks have become well established by the time that technological distance is relatively large. The tipping point between struggling and established networks arises when the distances are comparable. Technology then permits exchange over just those distances necessary for robust networks to exist and a vigorous growth in exchange occurs.

To exemplify these ideas we examine the evolution of maritime networks in the Aegean and E. Mediterranean from the Early to Late Bronze Age. The tipping point for the rapid growth of trade and exchange occurs at the transition from Middle to Late Bronze Age with the large-scale adoption of sail. This becomes clear when Minoan maritime networks are modelled in a way in which this sensitivity to 'geographical' distance is explicit. However, on either side of this transition point sensitivity to distance is less important and different computational approaches are required. The implication is that network dynamics in Early, Middle and Late periods has to be understood in terms of different social agency for network formation.

An earlier formulation of these ideas can be found in our paper, From Olar to Sal, 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 Uralis in the Late Bronze Age

Author - Dr. Shcherbakov, Nikolai, Laboratory of Methodology and Methods of Humanitarian Research BSPU, Ufa, Russian Federation (Presenting author)

Keywords: bronze production, Late Bronze Age, West-Asian metallurgical province

Presentation Preference - Poster

Widespread of bronzes production in the Bashkir Uralis 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, axes, heldtlasses 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 Uralis: Srubnaya and Andronovskaya (Alakulskaya) cultures. In Bashkir Uralis, 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 consisting of five simultaneous settlements - Usmanovo, Usmanovo II - III settlements, Muradymovo I, VII, VIII settlements and 57 Kazburun barrows was examined. Radiocarbon dating (Beta Analytic: 1890 – 1750 BC), proved chronological unity of these barrows and settlements. Numerous traces of bronze production were also found on the territory of Kazburun district. In Bashkir Uralis, close to Kargaly mines, there are 770 mines for the extraction of copper sandstones. V. Lunkov (Laboratory of Naturally Scientific Methods, Institute of Archeology, RAS, Moscow) and M Radivojevic (Jesus College Research Fellow McDonald Institute for Archaeological Research) carried out a complex of analyses of all bronze material belonging to one of the large settlements - Muradymovo settlement (Kazburun archeological district). Metal was worked on this site – refining, melting, casting. The primary Cu metal could have been imported from other regions as raw ingots (bars) artefacts. The provenance analysis imply that the metal worked in the site of Muradymovo settlement was likely acquired from the ores exploited in the Tien Shan mountains. The UCL and RAS analyses show that there is a significant number of pure copper artefacts that represent stock, ingots, working debris. The pure copper artefacts as implements (knives, etc.) need a closer look typologically etc. (RAN analyses). The tin bronzes are already present as finished artefacts and there is no evidence for their production thus far in this site. Due to the research, a new interesting problem in Bashkir Uralis archeology came up. Having a large number of copper sandstones and mines, developed in the Late Bronze Age (Kargaiisky mines), we got an interesting result: the export of ore from northern Tien Shan. As a result, deposits of copper sandstone of Upper Permian red color formations in Southern Uralis from Kargaly mines to Eek River in the area of 16379 square km were examined. Paleo-genetic studies have identified several groups in Kazburun archaeological micro-district. Probably in the late Bronze Age the ore came with population of Andronovskaya (Alakulskaya) culture of South-Eastern Kazakhstan. This confirms the theory of E. Chernykh about the unity of West-Asian Metalurgical Province.
TH6-03 Blurred Borders?
Making Pottery and Cultural Interaction in Neolithic and Eneolithic Europe

Friday, 2 September 2016, 09:00-16:00
Faculty of Philosophy, Room 307

Author - Sytaras, Michalis, The British Museum, London, United Kingdom (Presenting author)
Co-author(s) - Hofmann, Robert, Christian-Albrechts-Universität zu Kiel, Institute of Prehistoric & Protohistory, Kiel, Germany
Co-author(s) - Vukovic, Jasna, Faculty of Philosophy, Department of Archaeology University of Belgrade, Belgrade, Serbia

Keywords: ceramics, cultural interaction, Neolithic and Eneolithic Europe
Presentation Preference - Workshop

Pottery’s unlimited potential to express variation in style has revealed a complex mosaic of regional traditions across prehistoric Europe, which archaeologists have used to differentiate material cultures geographically and to build chronological sequences. The Neolithic and Copper Ages are understood primarily through analysis of ceramic ornamentation. One outcome is that we may also identify assemblages that are recognisably mixed, when characteristically artefacts of more than one material culture co-occur simultaneously.

This session brings together examples of culturally mixed Neolithic and Eneolithic assemblages from throughout Europe, to map their occurrence and discuss how they are interpreted, and what opportunities and difficulties arise when studying mixed assemblages. Issues such as trade, imitation, migration and conflict arise, but also national research traditions. For example, are mixed assemblages studied primarily to support chronological correlations, to investigate long-distance movements of people or materials, or, using historic or ethnographic analogies of cultural interaction, to study dynamics of cultural integration and differentiation? What are the common features of mixed assemblages? Do they represent ephemeral or ongoing contacts between cultures? Does one culture eventually replace the other, or does hybridisation emerge? Can we study interaction between locals and incoming people? Is there more than one chaine opératoire represented in mixed assemblages? Do sites with culturally mixed pottery also have mixed lithic assemblages? Do we need to apply more techniques, or modify sampling strategies, to understand the development of artefacts in mixed assemblages?

Do mixed assemblages recur in all phases of the Neolithic and Copper Ages, or are they more frequent within a particular timeframe? We are aware of numerous examples, such as sites with both Starčevo pottery and Impressed Ware, or Vinča and Tiszka, or Impressed Ware and Linearbandkeramik pottery, but we suspect that the phenomenon is more widespread and welcome contributions from archaeologists working in other regions.

TH6-03 Abstract 01
Early farming and the transmission of ceramic traditions in the western Balkans

Author - Dr. Marjan, Sebastian, University College London, London, United Kingdom (Presenting author)
Co-author(s) - Vander Linden, Marc, University College London, London, United Kingdom

Keywords: Balkans, ceramic, transmission
Presentation Preference - Oral

The 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 forty technological innovations: farming practices, landscape use, pottery, and lithics. Farming practices diffused across Europe following two main routes, inland and maritime. The inland stream initially corresponds to the Starčevo-Körös-Criş complex across the Balkans from 5600 cal. BC onwards, and then expanded across continental Europe as the Linearbandkeramik culture. The maritime stream is associated with the Impreso-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 mixing and mingling of both inland and maritime strains. How can we account for this in terms of cultural transmission?

Differences between the streams are marked in terms of pottery assemblages. Cultural transmission is the process by which information is passed from individual to individual through social learning. It is well recognised to be the mechanism by excellence underlying cultural change. It raises the question of the signal of cultural transmission in the archaeological record.

The ceramic chânes opératoires, defined as a series of operations which transforms raw material into finished products, is a particular relevant signal for tracing and identifying histories of transmission. Explanations have been found in the learning process. It has been demonstrated that learning involves a tutor and a model. At the end of the learning process, the learned skills are literally embodied. At the collective level transmission occurs within groups made up of individuals linked by social ties. These ties determine the social perimeter into which ways of doing are transmitted. As a result of these learning processes it appears that: a) the chânes opératoires are by excellence inherited ways of doing transmitted through successive generations; b) changes within chânes opératoires express cultures’ histories and the factors affecting them. In the latter case, evolution of technological behaviours can be generated through endogenous processes (or phylogeny) resulting in innovation(s), or through exogenous processes (or ethno genesis), taking place beyond social boundaries through horizontal transmission(s).

In this paper, we will present the first results based on the ceramic chânes opératoires analysis from the western Balkans.

TH6-03 Abstract 02
The Neolithic Volga-Kama pottery as a source of reconstruction of cultural interactions

Author - Prof. Vybornov, Aleksandr; Samara State Teachers Training University, Samara, Russian Federation (Presenting author)

Co-author(s) - Vinjabyeva, Irina, Samara State Teachers Training University, Samara, Russian Federation

Keywords: pottery, technological analysis, Volga
Presentation Preference - Oral

The research presented here focuses on the following issues: 1) identification of areas in the Middle Povolzhye and Prikamye with early pottery traditions, 2) establishing chronological frameworks using radiocarbon dating of pottery, 3) definition of the relations between the Neolithic cultural groups of Volga-Kama. The methods used to achieve these objectives are: 1) morphological grouping of pottery based on the ornamentation technique, 2) radiocarbon dating, and 3) technological analysis of pottery (Bobrinsky, 1999).

The study of the ancient Volga-Kama pottery revealed areas with two types of pottery raw materials: silty clay rich in sand in the Middle Povolzhye and plastic clay tempered with chamotte in the Prikamyi region (Vybornov, Vinjabyeva, 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 plain.

Round-bottomed comb-ornamented pottery of the local Kama culture is present in the Middle Prikamyi in the early Neolithic period (5300 cal BC). It is only made of clay tempered with chamotte. The raw material was mixed in a dry form.

Comb-ornamented pottery was introduced from the Prikamyi culture to the Middle Povolzhye at a later period (5000 cal BC). The proportion of local pricked pottery made of clay and chamotte increases to 15%. Kama comb-ornamented pottery made of clay tempered with chamotte does not exceed 10% further to the west (Mariliyskoye Povolzhye, Primokshanye, and Posurye). The rest of the ceramics were made of silty clays. This recipe (clay and silt?) is typical for the pricked pottery from the forest-steppe of the Middle Povolzhye.

Pricked-ornamented pottery is found from the Middle Povolzhye to Prikamyi at around 5000 cal BC. The percentage of comb pottery made of clay with chamotte decreases to 70%, whereas 30% of comb-ornamented pottery is made of silty clay, following the recipe typical for pricked pottery of the Middle Povolzhye. Among pricked pottery of the Middle Povolzhye type, the proportion tempered with chamotte, which is used to make comb pottery found in the forest of Prikamyi, increases to 50%.

At a later stage (4500 cal BC) comb pottery made of plastic clay and chamotte represents 70% of the ceramics in the Prikamyi region, and in the Middle Povolzhye comb pottery began to be produced with silty clay. This suggests a complete change of the idea of raw materials used by the communities of the Kama culture. The results indicate the long duration of the mixing process between the Middle Povolzhye population with comb pottery and different cultural groups. This demonstrates the coexistence, interaction and blend of different pottery traditions. Full transformation of ideas about raw material could occur during 5-6 generations of potters. In addition, each new generation had contacts with other technological traditions of pottery making (Bobrinsky, 1978). Thus, the study of the Neolithic pottery technology and its radiocarbon dating allows us to reconstruct the important processes of cultural character.

The work is performed for the project 33.119S.2014/k

TH6-03 Abstract 03
At the border line? The Neolithic and Copper Age pottery of Alto Ribatejo, Portugal

Author - Stoianovski, Darko, University of Trakia-montes e Alto Douro, Stip, Macedonia (Presenting author)

Co-author(s) - Oosterbeek, Luiz, Instituto Politecnico de Tomar, Tomar, Portugal

Co-author(s) - Cruz, Ana, Instituto Politecnico de Tomar, Tomar, Portugal

Co-author(s) - Thissen, Laurens, Thissen Archaeological Ceramics Bureau, Amsterdam, Netherlands
TH6-03 Abstract 04

Mixed assemblages and social relations in the Neolithic transitional period of the Central Balkans

Author - Dr. Vuković, Jasna, Faculty of Philosophy, Belgrade, Serbia (Presenting author)

Keywords: pottery, Starčevo, Vinča, technological tradition, hybrids

Presentation Preference - Oral

The transitional period from the Early to the Late Neolithic of the Central Balkans is characterized by the presence of mixed ceramic assemblages on several archaeological sites. Mixed assemblages (not only pottery, but also so-called cult objects - altars and figurines), consist of the specimens typical both to the Starčevo and Vinča technological traditions. However, another very important feature occurs in these assemblages: hybrids and the presence of careless, roughly finished products. The paper focuses on social aspects of these phenomena: do they suggest mixing of people with different group identities? Do they indicate migration, social mobility, or the presence of both teachers and apprentices in the craft? Do the variability of ornamental techniques and design motifs imply lack of social pressure in learning frameworks? And finally, do the roughly finished products suggest the presence of inexperienced artisans or newcomers unaware of local traditions?

TH6-03 Abstract 05

Transforming traditions behind the gloom: 6th millennium BC pottery styles of Transdanubia

Author - Jakucs, János, Research Centre for the Humanities, Hungarian Academy of Sciences, Budapest, Hungary (Presenting author)

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Keywords: 6th millennium BC, pottery styles, Transdanubia

Presentation Preference - Oral

Southern Transdanubia in western Hungary is a region that served as a transitory area between the Balkans and Europe during the 6th millennium BC. Current scientific analyses of the research team focus on four broadly contemporaneous sites in three different microregions. Balatonszépkozó-Kis-enyedi-dűlő lies on the southern shore of Lake Balaton, while Tolná-Mőzs is located at a distance of 80 km to the southeast closed to the right bank of the Danube. Szederkény-Kukorica-dűlő and Versend-Gilencsa have been discovered 50 km further to the south, located only a few km from each other. The evidence of original 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 intrahousehold levels. Facing the problem of entangled assemblages, when different pottery styles coexisted in the material of various contemporary households of the same settlement, the approach in the proportion of different ceramic styles is particularly noteworthy. The perhaps most intriguing variation is when contemporary but spatially clearly separated pottery styles are present on the same settlement, that means amalgamation cannot be detected at household level. Significant differences are obvious even if adjacent, contemporary sites are contrasted. The observations on pottery were also reinforced by robust formal modelling of absolute chronological dates in most of the cases. As a consequence, we are facing extremely colourful microregional patterns. Attention must be paid to this mosaic nature of the contact zone and to the stylistic variability existing within the entire settlement system.

The various pottery styles that existed partially or wholly coeval in the 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.
The determination of culture was a reference for the culture-historical archaeology in the Balkans and abroad, and leads many to identify particular regions with finds unearthed from Neolithic sites. This was a helpful tool for the early stage of prehistoric archaeology and contributed to the understanding of particular regional attributes common to the societies that inhabited various areas in the Balkans. However, recent research indicates that these cultural borders and material features are not so rigid and often much more extensive beyond the proposed geographical 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 asseparated and isolated areas and mainly considered within modern political borders. This was a significant step towards the first definition of cultural features of these regions and as such contributed in the identification of sites into cultural groups. Hence, the reconsideration of published material, artifacts from museum stores, documentation and new excavations indicated that some geographical divided and different regions were barely ‘culturally’ diverse. Thus, pottery regarded as the main feature of one culture appears in another which was classified as belonging to a different cultural group.

The case-study of the Neolithic pottery in Pelagonia and its production within the agricultural communities of the Skopje valley, Lake Ohrid basin, Ovče Pole and Polog, will be presented. Late Neolithic Vinča pottery will also be considered, as some of the temper types and design features appear at earlier tell sites in Pelagonia. In addition, the anthropomorphic house models from this area will be discussed. Originally, these were attributed by archaeologists to different cultures due to their typological variations in these regions. Therefore this paper will mainly consider pottery design and human representations in order to emphasise the common Neolithic features of the isolated regions and the modes of networks which integrated shared identities of distant societies. The issue of culture will also be discussed as it often invokes a contemporary notion of communities that inhabited particular geographical areas. Their intensive communication and common material culture goes beyond the archaeological cultural frameworks of the Balkans and as such will be emphasised for further revision.
Very interestingly, the results of the previous archaeological research conducted on Ildjoš revealed that materials characterised by both "Tisa" and "Vinča" styles could be found in the same contexts, for example in the house excavated in 1954 in Gradilče Ildjoš. Therefore, Ildjoš represents an ideal case study to investigate the dynamics which result in the formation of mixed assemblages in this region at that time.

In this presentation we provide the preliminary results of the pottery technological project which gathered experts from different fields of expertise archaeology, pottery technology and archaeometry. Through different types of analyses (macroscopic technological examination, thin section petrography, portable X-ray fluorescence and FTIR analysis), we aim to shed light on different aspects of pottery production at the site during the Late Neolithic, in order to understand if these different pottery styles could be connected to different chaffing operatives or could reflect different ranges 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 Ildjoš, or if they are the expression of exchange of ideas and communication among communities characterised by different material culture.

TH9-03 Abstract 19

Mixed Vinča and Tisza assemblages of the Borjoi-Plain, Vojvodina: Contextualisation and technology

Author - Dr. Hofmann, Robert, Kiel University, Kiel, Germany (Presenting author)
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Keywords: mixed assemblages, Neolithic Vojvodina, pottery analysis
Presentation Preference - Oral

During the Neolithic, due to their geographical position, Vojvodina and Banat formed a contact zone between several cultural zones. The local communities had connections to Balkans and Thrace. This is manifested, among other things, in settlement structure, architecture and material culture. In a group of sites in the Tisza valley, in the West of this area, Vinča and Tisza pottery styles occur together in the same settlements. We are studying this phenomenon at the spatial scale of two large Neolithic settlements and a loess plain with a size of 11 km² which is situated close to the town of Novi Bečej.

To understand the socio-economic implications of this and similar phenomena, we are contextualising artifactual material, archaeo-botanical and archaeo-zoological remains through comparisons of inventories from different households and settlements. The co-occurrence of Vinča and Tisza pottery styles in the same households is being investigated by typo-chronological and technological analyses. Geochemical and mineralogical analyses contribute to answer the questions of how pottery production in these sites was organised and how this pottery was linked technologically to the core regions of the cultural groups involved.

TH9-03 Abstract 14

Technology of Neolithic-Eneolithic ceramics in the territory of Neva-Ladoga basin (NW Russia)

Author - Dr. Kulikova, Marianna, Herzen State University, St. Petersburg, Russian Federation (Presenting author)
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Keywords: Okhta 1, Podolie 1 sites, Neva-Ladoga basin, petrography, XRF, microtomography of ceramics, technology, Neolithic-Eneolithic pottery

Presentation Preference - Poster

There are unique Neolithic-Eneolithic sites in the territory of the Neva-Ladoga basin (NW Russia). The site of Okhta 1 is located at the mouth of the Okhta River in the St. Petersburg city region. The first people occupied this territory around 4200 BC. These were the first communities of the Neolithic Pit-Combed culture. Changes in the landscape and the climatic conditions around 3200-3000 BC made this area attractive for habitation. In this period, on the coastal zone the houses, fishing constructions, area of the Great Russian Plain, the Central Balkans and the Thrace. The study of the Okhta 1, Podolie 1 sites, Neva-Ladoga basin, petrography, XRF, microtomography of ceramics, technology, Neolithic-Eneolithic pottery.

The Okhta 1, Podolie 1 sites, Neva-Ladoga basin, petrography, XRF, microtomography of ceramics, technology, Neolithic-Eneolithic pottery.

TH9-03 Abstract 16

Making pottery on the Neolithic settlements in the north of the Sozh river basin (Eastern Belarus)

Author - Tkach, Maria, Institute of History NAS of Belarus, Minsk, Belarus (Presenting author)

Keywords: technology, Neolithic pottery, Upper Dnieper culture

Presentation Preference - Poster

This study is based on the ceramic material from the main Neolithic sites of the north of the Belarusian Pashchaha (Eastern Belarus). The study was conducted in the course of excavations across multiple periods material were obtained, but Neolithic finds dominate.

The Hrona 3 settlement is situated on the first terrace of the left bank of the Sozh River. The site was discovered by V. Trefilov in 1974. In 1975 A. Kalechty 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 Rudina 1 settlement is situated on the first terrace of the left bank of the Sozh River (Eastern Bularus). The site was discovered by V. Kopytin 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 Bary Sardzd 4 settlement is situated on the first terrace of the left bank of the Oster River. The site was discovered by A. Kolosov in 2006. In 2006, 2010 and 2012 A. Kolosov excavated here an area of 232 m². The results of the study of 782 Neolithic potsherds from more than 80 vessels will be presented. Ceramic material was grouped 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 Belarusian Pashchaha region during the Neolithic period.

Group 1 is represented by slightly shaped vessels with inverted upper part and slightly bent rim. The vessels were tempered with organic and coarse-grained crushed stone. The dominant ornamental element is called “lapka”. 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 elongated body. The pottery of group 1 is the earliest on the settlements and is similar to pottery from the sites of Mal'ko-Halahaq (the Dnieper River basin). The clay body contains organic temper and comb impressions form dense or sparse horizontal, diagonal and vertical rows. 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 Pli-Comb Ware culture and the Middle Dnieper culture is also found at the sites. The results of the analysis indicate the presence of several traditions in the pottery making on the Neolithic settlements in the north of the Sozh River basin. Location of these sites in the upstream of the Sozh River and their proximity to the area of Desna culture has played a key role in the formation of these traditions.

TH9-03 Abstract 15

Corded Ware Culture in the North-West of Russia: mix of traditions

Author - Tkach, Evgeniia, Institute for the History of Material Culture RAS, St. Petersburg, Russian Federation (Presenting author)

Keywords: Corded Ware Cultures, migrations, traditions

Presentation Preference - Oral

There are a lot of settlements in the North-West Russia with Corded Ware Cultures (CWC) materials. They appear in the pille-dwelling settlements also. On the ceramic materials we could trace mix of different archaeological cultures: local and indigenous. First appearance of the CWC was observed in the middle of the III mil. BC on the pille-dwelling settlement Usvatskaya (Paliot region). I want to describe the settlement – layer a settlement Serteya II. This is settlement on the mineral bank near the river. Ceramic materials introduce a traditions: local, Usvatskaya, and indigenous, CWC. We could trace them in technology of making pottery (the way of using vessels, admixture in the molding dough), in pottery forms and in ornamentation. For example, admixture of gruss was never used in Usvatskaya culture, but on the vessels with cord ornamentation this is a main additive. On the other hand, technique of “blade and anvil” was widespread in Usvatskaya culture, but in the CWC materials on the settlement this technique was found only a few times. Cord ornamentation was never used in the North-West Russian 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 material was formed using slabs, ornamentation represents a horizontal lines of 2-twisted cord and as admixture in the molding dough was used gruss. Possible, that neocommors(CWC inhabitants) were mixed with local inhabitants and we trace now some new archaeological tradition, new archaeological culture.
TH6-03 Abstract 17
Sub-Neolithic pottery from the territory of Belarusian Pabužža
Author: Tsachou, 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 Dubčiai 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 Sokolšček pottery type were also found. The latter type is most probably a result of a local development of the Dubčiai pottery in the western part of Prypiat-Neman culture area.

Neolithic 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 hybird 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.

TH6-03 Abstract 18
Crkvišće-Bukovlje: Identifying Copper Age pottery from disturbed stratigraphy
Author: MA Čatarić, 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 affilation 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 pottery with Retz-Gajary traits will also be analysed in order to see if there are some differences between them.

TH6-03 Abstract 19
Neolithic pottery from Ljubic cave (Istria, Croatia)
Author: Percan, Tihomir, Croatian Conservation Institute, Svetvincenat, Croatia (Presenting author)
Keywords: analysis, decoration, Neolithic pottery
Presentation Preference - Poster

Due to its exceptional geographical position on the crossroads of ancient paths, the Istrian peninsula was an important link between east, west, north and south ever since prehistoric times. The Ljúbčica cave is situated in south 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 motifs and ornaments characteristic of the cultural phenomena from Early (Impressed culture), Middle (Danilo culture) and Late (Hvar culture) Neolithic therefore making it the period of the most intense usage of the cave. With this poster we will put the focus on the Middle Neolithic (Danilo culture) pottery and its ornaments (S shaped decoration, different spiral motifs, incrustation). Furthermore, laboratory analyses of pottery and ornaments show the significance of this multidisciplinary approach to archaeology and pottery. With these kinds of experiments, interesting results were collected. This work would not be possible without good cooperation between archaeologists and the laboratory where the analyses were held (Metris, Pula, Croatia). We also emphasise the significance of the modern scientific technology and methods to improve and advance knowledge connected to technology and production of pottery during the archaeological periods.

TH6-03 Abstract 20
Vessels with diverse lives: examples of decorated pottery with a change of function
Author: Sebijk, Katalin, 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 archaeologists: 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 periods and for users in different situations could have been. The examples from the settlements of Poljčni-Gradzh salmon and Pušatkastok-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.
ENTANGLED MIGRATION: THE MATERIALITY OF DIASPORA COMMUNITIES IN THE MEDIEVAL AND EARLY MODERN WORLD

Thursday, 1 September 2016, 14:00-18:30
Faculty of History, Room 331

Author: Linnea, Jette, Mosegaard Museum, Odder, Denmark (Presenting author)
Co-author(s): Rosan, Christina, Stavanger arkeologiske museums, Stavanger, Norway

Keywords: Early Modern, Materiality, Migration

Presentation Preference - Oral

Migration is a hot topic, but not a new one: Diaspora communities are well-known in the medieval and early modern past. The question is if the otherness of the migrants was as a hindrance or a resource in their new life. In this session we aim to take on this question by approaching links between individual identity, community and host- and homelands.

The session brings together three research areas: the study of migration, urban development, and the study of the formation and expression of group- and individual identity through materiality. The examples are many: The medieval Hanseatic migration was followed by refugees and economic migrants in Europe and beyond from the 16th century onwards, and the migrants were entangled in complicated networks of marriage, kinship and business relations in host- and homelands. This entanglement gives rise to series of core questions in the interpretation of the archaeological record: 1. How do we identify migrant identities? 2. How do we assess social or other differences within the immigrant communities? 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 from results from the ongoing Danish-Swedish research council project Urban Diaspora, that focus on Scottish, German and Dutch diaspora communities in Scandinavians cities. Urban Diaspora is based on the materiality of consumption reflected primarily in ceramics, eccocontacts and written records, but we invite speakers to give their perspectives on immigrant identities through papers dealing with all kinds of materiality, whether rooted in Hanseatic communities or in those of refugee Germans, 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: O’Flagain, 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 migrant diasporic communities, Ireland has had a long and continuous experience of external migrant communities. In fact, the main strands of the nationalist mythology formulated during the flux of nationalistic Romanticism were constructed in the context of – and often in contradiction to – the outcomes of these episodes of migratory activity. While recourse will occasionally be made to sixteenth and seventeenth-century migratory 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 tenth centuries, and secondly from the broader Anglo-French world from the end of the twelfth century to the mid-fourteen century. While each of these episodes differed from the others, in terms of scale and outcome, there were some commonalities. For example, both involved settlers from geographically disparate homelands, such as modern-day Denmark and Norway and areas of associated settlement in the case of the former, and modern-day England, France, Flanders, Wales and Scotland in the latter. Furthermore, both might be regarded as colonialism, seen here as a particular form of predatory migration, at least in terms of the intentions of the initial migrants.

Before assessing the outcomes of each episode, it is first necessary to determine the extent of the associated migratory activity by recourse to a combination of material settlement evidence, documentary sources, the 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 osification, 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 superimposing, if not conflicting, ways, and so the penultimate section of the paper will discuss the evidence for the holding of multiple identities in the case studies based on different spheres of social life. Following this, the paper will close with a discussion of the utility of the application of the lessons learned from these case studies to other examples of colonial, migratory or diasporic phenomena at other points in space and time.

TH6-04 Abstract 02
Jugs and pots - beer and stew? "Hanseatic "impact on medieval and early modern Bergen (Norway)

Author: Demuth, Volker, University of Stavanger, Stavanger, Norway (Presenting author)

Keywords: Germans in Bergen (Norway), Hanseatic league, Pottery, drinks and food

Presentation Preference - Oral

As widely known, the city of Bergen 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 partly 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 Hanseatic kontor 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 habitus of the persons that lived in the Hanseatic quarter of Bergen, presumable their eating and drinking habits. Are there significant traces that can be linked to the Northern German origins of these groups? Is it possible to pinpoint differences in the archaeological material that can indicate whether ethnic Norwegians or immigrants Germans lived on a particular site? What may have been possible areas of cultural contact and transfer between the different ethic and social groups? By combining the archaeological material with historical evidence the outlines of social realities in an international trading town emerge.

TH6-04 Abstract 03
Urban Diaspora - Entangled diaspora communities in Early Modern Scandinavia

Author: Dr. Linnea, Jette, Mosegaard Museum, Odder, Denmark (Presenting author)

Keywords: Diaspora, Migration, Urbanity

Presentation Preference - Oral

The Early Modern period (c. 1450-1650) was a time of transformation in the Early Modern cities. Increasing early modern migration into Scandinavia from the Netherlands, present Germany and the UK meant an influx of people, objects and ideas that profoundly transformed the cities, where the immigrants settled and formed diaspora communities with strong commercial and family ties to their homelands. The formation of such communities in established cities gave rise to a series of reactions from the hostlands. Some meetings were peaceful; others were conflict-ridden. The migrants came with different agendas: conquerors and colonizers, traders, economic, political and religious refugees had their own agendas and aims, each of them influencing the interaction within the communities and between the communities and the local inhabitants. And they were met with different responses ranging from official welcomes to conflict and resistance. The urban Diaspora project is an ongoing cross-deiplinary and cross-national research project on immigration into medieval and early modern Scandinavia. In the course of the project our participants has uncovered tracks of migration based in archeology, 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 Lödöse case

Author: Dr. Rosan, Christina, Arkeologiska SHMM, Tölö, Sweden (Presenting author)

Keywords: Early Modern, Migration, Scandinavia

Presentation Preference - Oral

The town Nya Lödöse existed between 1473 and 1624 on the west coast of Sweden. The written sources from the town are sparse and cover only the last decades of its existence. In this paper I will discuss strategies for identifying immigrant households from the archaeological record with emphasis on how to distinguish between diaspora identities and other overlapping identities such as occupation, social and economic status.

TH6-04 Session Organizer:

[Organizer’s name and affiliation]
TH6-04 Abstract 05
Early Modern Immigrants: The City of New Lödöse in the Historical records
Author - PhD Larsen, Daniel, University of Gothenburg, Göteborg, Sweden (Presenting author)
Keywords: Early Modern, Immigrants, New Lödöse
Presentation Preference - Oral
The city of New Lödöse 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 Elsinore. In the research project Urban Diaspora - Diaspora communities and materiality in early modern urban centers, New Lödöse 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 Lödöse, no written documentation has been found that makes it possible to identify owners of excavated plots or to study individual farming thoroughly (e.g. marriage strategies, networks, and materiality). On the other hand, the discovery of a number of tax poll lists from 1599-1610 has made it possible to analyze the town in other ways. The compilation of individual data from these lists not only shows a city with a number of inhabitants of Dutch and German origin and significant socioeconomic differences, but also provides a more precise idea about the city district's 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, Højbjerg, 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 the need for new markets by growth and progress for the city 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 rare, so 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 Sykse, University of Copenhagen, Copenhagen OE, Denmark (Presenting author)
Keywords: Animals, Diaspora, Entangled Migration, Zooarchaeology
Presentation Preference - Oral
Analyses of archaeological animal bone assemblages sometimes provide evidence of successions and/or coexistence of different cultures. Thus, the species present and their relative frequencies at the site Gården under Sandet, Greenland (AD 1000-1400) show that the Norse settlers imported European domestic mammals and partly subsisted on these, but that over time the importance of native seals increased, whereas the importance of cattle decreased. Cutmarks etc. on the bones may also provide clues; for example bi-perforated metapodials, mostly of sheep, from the Danish site Ribe (AD 725-850) indicate that bone marrow was obtained this way which seems to be an ancient tradition in Scandinavia which has been exported to England (several sites, 9th-11th centuries AD), where bi-perforated metapodia have been found only in 'Anglo-Scandinavian' layers. The representation of individual skeletal elements in the material may also reveal particular cultural traits, such as the herringbone material from the Danish site Sels (AD 920-1300) which shows that the procedure of gilling the herring is not a Dutch invention which has been exported, as indicated by written sources, but was practiced in Denmark much earlier. The interpretation of the animal bone assemblages is complicated by the fact that different classes within a single society used different species of animals.
Aspects of the animal bone material from Elsinore, Denmark (16th-17th centuries AD), analysed as part of the Urban Diaspora project, are presented with a view to establishing whether the material provides evidence of traditions of the Dutch diaspora.

TH6-04 Abstract 08
Tracing ethnicity in food consumption - the case of Nya Lödöse
Author - Maltin, Emma, Bohuslänns 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 Lödöse (1473-1624), Sweden. The town was situated at the Swedish west coast, and was characterized by a multicultural population largely consisting of merchants, soldiers and sailors. From 2013 and onwards comprehensive excavations covering large parts of the town have been conducted. A range of different features have been excavated, from houses and backyards to streets and refuse pits. The clearly defined plots form a unique possibility to map differences in food consumption between households, and possibly connect the variation with the identity of the plot owner: eg. ethnicity, status or class.
Archaeological features clearly connected to the consumption in five town plots were selected, and special attention was given to the fish bone assemblage. The names of the plot owners are not known through written sources. It was apparent early on that there did exist interesting differences, especially regarding the distribution of species. Anatomical distribution and size were also investigated. The challenge lies, as always, in explaining the differences found. Are they due to the resident’s birthplace, social class or personal taste, only to mention a few possibilities?

TH6-04 Abstract 09
Foreign beer and gruel traditions in late medieval town Nya Lödöse, Sweden
Author - PhD Heimdahl, Jens, National Historical Museums, Hägersten, Sweden (Presenting author)
Keywords: archaeobotany, beer, immigrant
Presentation Preference - Oral
Food and beer traditions foreign to the local Swedish west coast have been traced by specific plant material in the late medieval town Nya Lödöse, and may linked the local bourgeois of Dutch or German origin. Traces of hop beer brewing from the late 13th century is an anomaly in an area strongly dominated by sweet gate beers as late as mid 15th century. Likewise, the use of millet stands out as foreign in relation to local tradition. It represent a imported foodstuff not native to the area, maybe imported by German or Dutch houseouts for the making of certain traditional dishes – like gruels consumed on specific occasions. The traces of foreign food and beer traditions bear witness of a multi-ethnic town, with populations of traders preserving traditions of their homeland.

TH6-04 Abstract 10
Plant finds and migration in early modern (15th to 17th century) Aalborg
Author - MA Jensen, Peter Mose, Moesgaard Museum, Højbjerg, Denmark (Presenting author)
Keywords: archaeobotanical, immigrant
Presentation Preference - Oral
The Danish town of Aalborg from northern Jutland is known historically to have contained a number of immigrants in early modern times, mainly coming from the Netherlands. The perspective of the presentation will be to discuss the possibilities of observing signs of migration in analyzed plant material from the town.
The basis for the discussion is a number of recent archaeobotanical analyses dating from around 1400 A.D. until the late 17th century from Aalborg. The analyzed samples represent diverse archaeological contexts, ranging from 16th century garden soils or dung layers coming from a monastery and a later hospital area to different latrine samples. One latrine sample of particular note is given to the fish bone assemblage. The names of the plot owners are not known through written sources. It was apparent early on that there did exist interesting differences, especially regarding the distribution of species. Anatomical distribution and size were also investigated. The challenge lies, as always, in explaining the differences found. Are they due to the resident’s birthplace, social class or personal taste, only to mention a few possibilities?
This paper seeks to explore, in how far it is possible to identify common traces or differences between "Danish" and immigrant households in Aalborg and Ebeltoft during the renaissance. The focus will be put on stove tiles as type of material culture with a solid background of research and many possibilities to identify the origin of fabric, decoration and use. Moreover, the position of a stove in the house and its relationship to the development of dwelling habits will be discussed.

TH6-04 Abstract 12
In the houses of urban strangers?
Author - Historian Jernej, 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. Istrate, Daniela Veronica, Brașov, Romania (Presenting author)
Co-author(s) - Istrate, Angel, Hâncușia archaeology, Brașov, Romania
Keywords: anthropomorphic graves, medieval colonisation, Transylvania
Presentation Preference - Poster

From the mid-12th century, guests from Central Europe, generally known as Teutonici, Flandrensi, and ultimately Saxons, were invited to settle in southern Transylvania (central Romania) in return for important economic and social privileges. The process of colonization was at its peak in the first decades of the second half of the 13th century, when several villages and towns were established in the hinterland of Sibiu, the largest city in southern Transylvania. Settlers continued to come well into the early 14th century, establishing enclaves of a German-speaking population. They developed a successful economic system, which enabled the establishment of strong settlements, the rise of an intellectual elite, and the growth of cities that rivaled many urban centres in East Central Europe. They also developed a distinctive religious architecture.

Very little is known about the first generations of colonists; written sources (very modest for the entire region during the Middle Ages) are scarce, and existing archaeological evidence is limited. However, one of the most obvious manifestations of these communities’ individuality was of funerary nature. When excavating the lower stratigraphic layers of the cemeteries used by German settlers, archaeologists often find anthropomorphic graves, i.e. dug into yellow clay by following the shape of the human body, with a niche for the head. After this burial custom had been used for nearly a century (1150-1250), it suddenly disappeared.

In recent decades archaeology has brought to light hundreds of such tombs scattered among other burials in Saxone 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.

TH6-05 Abstract 01
Adieu Hallstatt! Adieu La Tène! Revisiting old ideas
Author - Prof. emeritus Collis, John, University of Sheffield, Sheffield, United Kingdom (Presenting author)
Co-author(s) - Dr. Mason, Philip, University of Bradford, Bradford, United Kingdom, Ionuț, Co. (Ivan), University of Bradford, Bradford, United Kingdom
Keywords: Iron Age, Hallstatt, La Tène
Presentation Preference - Oral

At the 1984 conference of the AEAf (published in 1986) I gave a short paper suggesting that if we could only get rid of the terms Hallstatt and La Tène we might write a very different narrative of the European Iron Age. At that time I was looking specifically at cases in southern Germany, central France and Britain where ideas of chronological divisions and ‘culture groups’ were getting confused, and mixed with now unacceptable theories on the origin of the Celts and their supposed migrations. Only now is the concept of the ‘culture group’ being replaced with ‘networks’ and I personally have been trying to replace chronological ‘phases’ based on ‘type fossils’ (as originally developed by Reinecke and Dechelette) with ideas of building chronologies on ‘attributes’ and sequences of ‘horizons’ signalled by single innovations or mutations in material culture. The concepts can also be applied to genetics and languages, and so help to re-integrate different disciplines which in recent years have grown apart (e.g. in ‘Celtic Studies’). I will reflect on our nomenclature and whether terms like Hallstatt and La Tène should be abandoned, or can still be used, e.g. to denote styles of pottery, burial rites, etc. It means that we stop trying to construct chronological and cultural boundaries, and it can also affect basic things like the way in which we publish archaeological excavation reports.
Boundaries provide an exciting and dynamic place to be doing archaeology, but they can also be fraught with troubles. Working across national borders often requires re-evaluation of classificatory schemes for both ‘cultural’ groups and their associated material culture. To say a site belongs to “the Iron Age” carries a 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 05**

**Iron Age Burial Customs and Cultural Dynamics Between Eastern Alps and Southern Pannonia**

Author: Prof. Potrebica, Hrvoje, University of Zagreb, Faculty of Humanities and Social Sciences, Zagreb, Croatia (Presenting author)  
Co-author(s): Mr. Borut, Dolenjski Muzej, Novo Mesto, Slovenia  
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 Urnfield 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 would seem appropriate to apply large-scale population movements, this view is not supported by recent research, which suggests that the identity of the Iron Age cultural groups should be analyzed at the level of individual communities. A comparative analysis of contemporary and conceptually similar grave inventories discovered in different cultural contexts belongs 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 hierarchial approach to different forms of social identity is justifiable and is there actually any model which could be universally applied.

The results of research of the large necropolis of Kapiteljska Njiva in Lower Carniola carried out in recent years will illustrate the chronological axis of expression of identity in grave contexts. At this site, one can distinguish among three main burial phases, which are also physically different. The first consists of a typical graveyard of the Urnfield Culture, containing distinctive incription burials in pits; the second phase 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 incursion graves in pits. However, at this site, all three burial phases are present in the same location, and they reflect certain spatial complementarity, at least during the transition periods. In addition, grave-good inventories clearly demonstrate great similarity of the material culture of the latest graves belonging to one burial phase and the earliest graves of the following phase, regardless of the drastic difference in the grave structure. The spatial areas of relation between burials and identity will be demonstrated through comparison between the Lower Carniola burials and burials in the Kapitel area. The inventories of these 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 04**

**Iron Age interaction in the Po river lowlands and in the pre-Alps of the western Veneto (Italy)**

Author: MA Saccoccio, Fabio, La Sapienza University of Rome, Roma, Italy (Presenting author)  
Keywords: borders, Iron Age, Veneto region  
Presentation Preference: Oral

The western Veneto region is geographically characterized by a landscape that progressively decreases in elevation from the peaks of the pre-Alps to the plain shaped by the Brenta, Adige and Po rivers and tributaries. The western border of Veneto seems to show a long-lasting pattern of interaction between human groups at least since the Final Bronze Age. This long duration pattern is still notably remarked by the current regional borders.

As recognized by several authors, the whole plain and pre-alpine areas seem to share the same material culture, during the Final Bronze and the Early Iron Ages (X-VIII century BC), i.e. the Proto- and Palaeovenetian culture, but they strongly differ in the settlement pattern, showing a marked continuity in the South-Western Plain area, while the northern pre-Alps seem to be affected by the wider Final Bronze Age settlement crisis. Finds related to the Trentino-Luca/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 Mincio river, records the presence of Etruscan finds - a bronze double axe and a lunette statues, one with an inscription - it seems 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-Sanzeno 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-Cenomanes intrusion that led to a profound change and reorganization of the considered archaeological landscape. Connections between the analyzed areas and the Celtic one, North of Alps, are recorded by finds since the end of 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 ethnicity in this phase. Complex is generally the definition of the Palaeovenetian polity for the IV century BC due to the scarcity of archaeological evidences: only in a subsequent phase the presence of Celtic human groups is recorded in the area near Verona, Oppeano and Mantua leading to a contraction of the Palaeovenetian polity.

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**TH6-05 Abstract 06**

**ArkeoGIS: a multilingual free online tool to transcend borders**

Author: Prof. Bernard, Loup, Université de Strasbourg, CNRS UMR 7044, Strasbourg, France (Presenting author)  
Keywords: ArkeoGIS, multilingual, open  
Presentation Preference: Oral

Originally developed in the Rhine Valley in order to gather together French and German archaeological data from the Bronze Age to the Early Medieval period, ArkeoGIS now aggregates more than 60 datasets covering in excess of 50,000 objects along a Europe-wide scale. Its efficiency for trans-border archaeological and paleoenvironmental studies has convinced us to move from version 3 to 4: the latter will offer the possibility to add new languages and chronological systems from summer 2016 onwards. The presentation will also focus on several, now redundant, trans-border problems and explain the solutions that have been chosen by the team of archaeologists, geographers involved in the project, and the ways in which the tool can be useful for any future cross-border project.

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**TH6-05 Abstract 03**

**Strangers at the Feast? Elites, artefacts and exchange in the 1st millennium BC in SE Slovenia**

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Keywords: Iron Age, Late Bronze Age, Slovenia  
Presentation Preference: Oral

The paper explores the role of elite contact and competition in the LBA and EIA societies in SE Slovenia in the transmission of artefacts and technologies around the Head of the Adriatic in the 1st millennium BC in the light of recent research. Exotic material in both mortuary and settlement contexts reflects changing patterns of elite exchange in the balance, bringing 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, combining with and transforming 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 Dolenjska group.

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**TH6-05 Abstract 02**

**Presentation Preference: Oral**

ArkeoGIS: a multilingual free online tool to transcend borders

Author: - Oral

Keywords: ArkeoGIS, multilingual, open

Presentation Preference: Oral
TH6-05 Abstract 07
Crossing the borders of the La Tène “world”

Author: Dr. Daniilisova, Alzbeta, Institute of Archaeology CAS, Prague, v.v.i., Prague 1, Czech Republic (Presenting author)

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Keywords: Baltic, transalpine, Adriatic, borders, La Tène

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 imitation of distribution characteristic coinage or pattern of long distance imports? Can the same material culture reflect different cultural identities, different political, economic or even ethnic entities?

How we understand communities existing under the label of “the La Tène culture”? Who were their neighbours, counterparts and of what nature were their mutual contacts? Did they understand the concept of borders as we understand it nowadays?

Our recent findings show (mostly peaceful) coexistence of the main cultural groups in the transalpine area (especially “Celts” and “Germans”). This is well attested especially along the long distance routes (Amber route, Elbe route), in peripheries of traditionally used lands and at most of the major settlements. The true break seems to come with the later Germanic occupation, when many of the regions around the central European area (Saucny, Lusatia, parts of Bavaria, parts of middle Danube area etc.) remain deserted. However, there exist some evidence of the prevalence of these traditional contacts.

The contribution aims to summarise research development made on the territorial issue of the La Tène culture and its northern (the “Germans”) and southern (the “Romans”) counterparts during the last ten years. We want especially to assess the importance of long distance routes (connecting the Adriatic, transalpine and Baltic regions) and to point out how contemporary study of these communications with the use of modern methods can change our traditional perspective of the concept of borders of the La Tène world.

TH6-05 Abstract 08
Exchanging rough materials between North and South of Europe at a time of transition

Author: Adj. Prof. Oikonomides, Stavros, Arcadia University Athens, Greece (Presenting author)

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Keywords: Baltic Amber, Cultural European “Koine”, Baltic area, North and South of Europe

Paper: Scientific analysis of rough materials

Presentation Preference: Oral

The Baltic area is in the deep North of the European Continent still reachable from southern people already in the Late bronze Age as mythical “Hyperborea” destination. Different types of Baltic amber have been found in different archaeological contexts of many regions of the Mediterranean as proof of the interest on this exotic northern product. The Baltic area, though, is not only a potential “Hyperborean” destination in Late European prehistoric, source of exotic rough materials, but it could be the epicenter of early commercial exchanges which forms, for the first time, the vast network of a vast cultural “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, Alexis, University of Bordeaux Montaigne, Pessac Cedex, France (Presenting author)

Keywords: Alterity, 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, where Iron Age patterns of mobility appear year after year more complex than the ones of the first millennium BC, whereas the formation of mobility patterns is pretty difficult to detect, based on the study of the material record (personal ornaments, burial practices, etc.), people of foreign origin in any one specific region. This observation suggests that, in the very specific case of individual mobility (i.e. not a mobility through group migration or deportation), geographical origin was more of an influence on one’s biology than one’s “social skin”.

In other words, individual migrants would easily have adopted identity markers proper to their new community, thus abandoning those they brought from their original home. Yet, occasionally, isolated foreigners could be segregated through specific funerary practices, or be the target of specific forms of violence, sometimes ritualized. Exclusion of the alien, going as far as physical extermination, was not then beyond the scope of the Iron Age communities.

These practices seem to have remained quite scarce, however. Above all, they were embedded in a wider range of patterns related to violence used as a mean for negotiating social order, and involving exhibition of weapons, body parts, ritual murders, etc.

In this paper, I would argue that the construction of Iron Age identities relied less on one’s geographical origin, but rather on one’s kinship and lineages. 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 connected 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: Prof. Potrebica, Hrvoje, University of Zagreb, Faculty of Humanities and Social Sciences, Zagreb, Croatia (Presenting author)

Co-author(s): Prica, Ivana, Antiquities, The National Museum of Bosnia and Herzegovina, Sarajevo, Bosnia-Herzegovina

Keywords: Donja Dolina, Early/Late Iron Age Transition, Kaptol

Presentation Preference: Oral

This paper will discuss shift of identity that occurred at the Early/Late Iron Age transition in Southern Pannonia. Presentation will focus on the River Sava basin which has been perceived as border in recent centuries. However, at the end of the Early Iron Age, this is the area of dynamic cultural transfer directly related to changes in perception or demonstration of identity 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 necropolis in Donja Dolina begins in the Late Bronze Age, but the site continued to be used for burials until the end of the La Tène period. Around one quarter of the graves within the necropolis contain incineration burials, mostly belonging to earlier periods, while the majority of graves are flat graves with skeletal burial. The material discovered in graves within the necropolis displays similarities to the neighbouring Iron Age groups in the Balkan hinterlands, but it also corresponds to the finds made in Lower Carniola and even more to those from the Pohega 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, as well as the well-known graveyards of Beremend and Szentigrócs in Hungary, and the graves in Vinkovci, Vucodol, Đilovac and Belišće 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 Pohega Valley.

From the point of view of the Early Iron Age, this changes the picture of Lateneisation 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. Gleba, Margarita, University of Cambridge, Cambridge, United Kingdom (Presenting author)

Keywords: Textiles, Iron Age, cultural encounters, East Mediterranean, archaeological evidence

Presentation Preference - Oral

Textiles represent a product the design and use of which are subject to cultural patterning and as such they can be used to identify the traditions 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 technology to delineate wider cultural and technological spheres of influence.

TH6-05 Abstract 12

Digital approaches to the presentation and analysis of Iron Age art

Author - Professor Armit, Ian, University of Bradford, Bradford, United Kingdom (Presenting author)

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Keywords: 3D digital methods, data capture, Iron Age art

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 in the ENTRANS Project belong to the tradition known as Isola art, classically defined as figurative repoussé decoration applied to sheet bronze objects, such as the eponymous situlae, as well as belt buckles, helmets and occasional other objects. However, both figurative and geometric decoration is also applied to a range of other objects and materials, which are equally important in explorations of the social meaning of Iron Age art in the region. This paper presents a series of case studies based on the digitisation and visualisation of decorated Iron Age objects held in museum collections in Slovenia and Croatia. The aim is to illustrate the potential of specific methods in both the analytical and presentation applications of 3D imaging. The work is a collaboration between ENTRANS, the Fragmented Heritage Project and Bradford Visualisation at the University of Bradford and University College Cork.

TH6-05 Abstract 13

The cremated dead: investigating cremated remains from the Late Bronze Age/Early Iron Age transition

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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 encounters in the East Alpine region.

Cremated remains, while rarely examined, can provide a valuable insight into the past. Although the potential for age and sex data can be diminished by the cremation process, the burnt remains can still offer information regarding pyre technology (e.g. heat and degree of burning), selection processes for deposition, and clues as to the condition of the body prior to cremation through the observation of fracture patterns.

In the past the process of cremation and subsequent deposition of human remains has, on occasion, been described as reflecting egalitarian social structures, or even the idea of a 'poor man's grave', especially in comparison with more elaborate Iron Age funerary monuments. The examination of cremated remains from unfilled cemetery sites in modern day Slovenia, and of the large Early Iron Age funerary complex of Kapitol in northern Croatia, has offered an additional level of understanding regarding prehistoric attitudes to the disposal of the dead.

The investigation seeks to cross boundaries, not only of geographical and chronological terms, but also in regards to strategy. Interpretations draw upon both scientific and more traditional approaches as a means of enriching interpretations of funerary processes in the past.

TH6-05 Abstract 14

Beyond the vessel: residue analysis and the understanding of identity in Early Iron Age Europe

Author - Bastos, Beatriz, University of Bradford, Bradford, United Kingdom (Presenting author)

Keywords: Ceramics, residues, 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 from ceramic vessels 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 found to be considerably different, by identifying how the vessels were used and the specific resources they contained. This paper also demonstrates how organic residue analysis can show patterns of change and encounters during later prehistory.

TH6-05 Abstract 15

'Beyond the grave' with the help of multidetector computed tomography and micro-excavations

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Keywords: cremation burials, micro-excavations, multidetector computed tomography

Presentation Preference - Oral

The urn is the ultimate 'burial place' of the cremated remains of an individual. But it is much more than that. The type of vessel, preparation of the contents, possible additional grave goods etc. has by far not only functional but foremost symbolic meanings and values and holds information about the time of the deposition, 'cultural' milieu, status of the deceased and much more.

The study of a cremation burial is not a straightforward and self-evident process. We have to bear in mind that we are dealing with traces of events and processes, the understanding of which is only partial. On the other hand we have to admit, that it is only the information that we can trace, observe and make documentation of, which we later analyse, study and eventually interpret. Therefore the research of an urn starts already with the preparation for the excavation of its grave. In our case studies that means the analysis of the sites and their surroundings. That includes lidar scanning and the analysis of its broader landscape, followed by ground truthing campaigns and geophysical prospections. That means that we have a fairly good idea of the topographical settings and the broader cultural landscape of the site. It is also the time of excavations of the 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 rites.

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 (MDCT) connected with the micro-excavations of urns. Such research results in an until now unknown variety of new data, not only of the grave itself and its preparation, but also of the post-
depositional processes, which play an important role in the final interpretation of the graves, burial rite 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 standardised grave research ‘tool-box’, but it is certainly on the way there.

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TH6-05 Abstract 16
Open-minded access to Late Bronze Age societies in southern Carpathian Basin

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Keywords: communities, Late Bronze Age, mortuary practice

Presentation Preference - Oral

Late Bronze Age communities in southern Carpathian basin are known through different cultural patterns/cultures/groups. The research project Late Bronze Age mortuary practices and societies in southern Carpathian Basin (IRP-17-2013-5327), funded by Croatian Science Foundation, combines archaeology, anthropology and archaeozoology in attempt to reconstruct burial customs and shed more light on societies that have practiced them, while questioning existing hypothetical models and their territorial and temporal boundaries. Research methodology is based on independent analyses in each field to bypass possible biases, followed by comparison and integration of all data in further discussion and interpretation. Preliminary results indicate benefits of this open-minded approach to Late Bronze Age societies in southern Carpathian Basin.

Working independently anthropologists and archaeozologists are less biased by the existing models in archaeological literature in their interpretation. This „bottom-up“ approach is based on more credible evidence which occasionally do not correspond with existing hypothetical models of past societies. Observing treatment and disposal of bodies, selection of grave goods and overall deposition, suggest different criteria of which some obviously reflected tradition while others indicate innovations presented by individuals living in these communities. Moving beyond the existing borders, it is possible to see images of the “small worlds” that overlap in the contact networks of practiced customs. Some customs (e.g. cremation of deceased, animal meat as offering of food, and various sets of vessels as containers for food and drink) could be examples of tradition in transitional period from Late Bronze to Early Iron Age in southern Carpathian Basin. Even with the application of open-minded approach, invisible borders still exist, but defined by the people that we investigate, rather than researchers.

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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

Presentation Preference - Poster

Between Visages and Black Forest mountains, Bronze and Iron Ages (10th-8th century B.C.), modern France and Germany, the context of this study defies borders. In the Upper Rhine Valley, at the end of the Bronze Age, one can a priori hardly expect to reconstruct boundaries because of a standardisation of the material culture, and the point is more about interactions’ significance. During Late Bronze age, the cultural entity “Rhin-Suisse-France Orientale” or “RSFO” (“Rhin, Switzerland-Eastern France”) has a core on the Rhine section between Basel and Karlsruhe. Since the 9th century B.C., this cultural entity dissolves, turning gradually to the Hallstatt one. This paper aims to focus on the people who experienced this transition period, in a supposed “flow corridor”. Which communities lived there, standing out and interacting with each other? Does it match with geographical features? Does it change through time?

According to the anthropology of techniques, ceramic shaping operations, and especially shaping sequences, can vary depending on cultural factors and material constraints. It leads to technical traditions specific to social groups. Social boundaries can thus be defined by the limits of the transmission network of technical traditions. About 50 technical features (for example bottom forming technique, finishing technique applied on the outer surface of the rim ...) were analysed on 830 well-preserved potteries, sampled on 19 sites distributed from the south to the north of the valley section. A statistical classification procedure has been developed, based on biological methodology, to model the diversity of technical traditions. It first appears that a technical background is similar on the entire area, with the omnipresence of the coiling technique. However forming methods and sequences are very different and reveal a great variety, which is related to the morphology of the potteries and to their spatial provenance. This distribution indicates that geographical potteries (like mountains or the Rhine river) do not impact on social boundaries. Moreover, technical traditions go through chronological limits and bring thus a complementarity approach to artefacts’ morphology to understand transition mechanisms.
TH6-06 Abstract 01

**KAFU - A network for archive studies**

**Author:** Dr. Neumayer, Heino, Museum für Vor- und Frühgeschichte, Berlin, Germany (Presenting author)

**Keywords:** Archive Archaeology, International, KAFU

**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 nordöstlichen Mitteleuropa (KAFU)”, which was founded in 2001, is to reconstruct in international cooperation – Germany, Poland, Russia, Lithuania – the archaeological collections and documentation that was destroyed or dispersed in the Second World War, and so to render this “lost archaeology” accessible for research once more.

The session the following topics are to be discussed within a pan-European framework: What knowledge can be gained for current research questions within archaeology, beyond the reconstruction of material from lost collections, from providing access to archival material (excavation documentation, photographs, drawings, maps), in particular from the 19th and the first half of the 20th century? What are effective and promising strategies for the preservation of archival holdings, even when only fragmentarily preserved, in order to extract the maximum possible information? How can studies of archival material progress beyond mere typo-chronological description of objects and lay the foundation for up-to-date research projects? How does the way in which archaeologically relevant archival holdings are dealt with vary across Europe? Are there methodological differences? The session shall provide a forum for contemporary, interdisciplinary and theoretical research approaches towards archival studies. Specific topics are welcome to span all archaeological ideas, regions and periods.

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**TH6-06 Abstract 02**

**The Sources of the „Archival Archeology“ in the Carpathian Basin**

**Author:** Dr. Proházková, Peter, Archæological Institute of the Slovakian Academy, Nitra, Slovakia (Presenting author)

**Keywords:** Archival Archeology, Archivalis, Carpathian Basin

**Presentation Preference:** Oral

The Carpathian Basin is as a venue of people from the prehistory. A multifarious archeological material is characteristic for it. The Carpathian Basin has been an important territory of the archeological research in Europe. But about a large part of the artifacts and sites are not enough data available. Although the archeological research in the Carpathian Basin has nearly two hundred years of history, but since centuries come treasures, hoards, graves and artifacts to light. About these data are in official files, which are in the archives. From the 19th centuries amateur archeologist conduct research and they corresponded about their discoveries and finds with the museums and scientists. A part of the artifacts comes to the museums in Hungary and abroad. These old finds composed the basic of the modern archeology in Europe. The „archive archeology“ plays an increasing role in the international research. Its meaning is in gathering and publishing of all the written sources, locating the artifacts, mentioning the archeological finds and sites. With the help of these written sources and reports it is possible to enlarge and precise the knowledge about older sites, archaeological contexts and to reconstruct the finding entities. These records are unknown, unprocessed and unpublished. With help of some examples I would like to present the potential of the „Archival Archaeology“ for the today research.

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**TH6-06 Abstract 03**

**Reichs-Limeskommission and WHS Upper German-Raetian Limes – Sources and research from the archives**

**Author:** Dr. Hüßen, Claus-Michael, German Archaeological Institute, Frankfurt / M., Germany (Presenting author)

**Keywords:** cultural heritage management, Reichs-Limeskommission, Upper German-Raetian Limes

**Presentation Preference:** Oral

The “Limesarchive” of the Romano-Germanic Commission (RGK) include large parts of the archive and the collections of the Reichs Limeskommission (RLK). The RLK explored the Limes mainly from 1892 to 1903 between the Rhine and the Danube. The scientific results were edited by F. Fabius in the series “Der Obergermanisch-Raetische Limes des Romereiches” (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, correspondences, maps, plans and photos between 1888 and 1939. The stock is supplemented by the card file for the Fundindex ORL, reports in words and pictures about Limes inspections in the 1950s and 1960s and others. Since then there is an increased interest in historical documents about this monument. The total inventory of the archives was already recorded in 2004, funded by the State of Baden-Württemberg. The documents for the Bavarian Limes section were registered and digitized 2009/2010 with special funds from the Free State.

The Deutsche Limeskommission (DLK) promotes workups of old excavations and research on the Limes by doctoral scholarships for some years now. Thus, the Limes archive now serves as an information and data source for master and doctoral theses, for contemporary historical studies, for articles and databases on special topics, issues related to the preservation of the monument, for different types of visitor information and advice on World Heritage and for exhibitions in museums. Moreover, new questions arise by connecting the results of modern prospecting methods with the early field observations. Two research excavations at the Raetian wall were devoted to these issues in 2015.

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**TH6-06 Abstract 04**

**Scientific Archive of IHMC RAS: pages of European archaeology**

**Author:** Prof Medvedeva, Maria, Institute for the History of Material Culture, Russian Academy of Sciences, St.-Petersburg, Russian Federation (Presenting author)

**Keywords:** documents, photographs, Institute for the History of Material Culture, Scientific Archive, archaeology

**Presentation Preference:** Oral

The Scientific Archive of the Institute for the History of Material Culture, Russian Academy of Sciences (IHMC RAS), keeps invaluable documentary archaeological Collections. Its history started from 1859, when the Imperial Archaeological Commission (IAC) was established by Russian Emperor Alexander II. By the early 20th century IAC became coordination and control centre in archaeological and restoration studies of Russian Empire. IAC has accumulated unique archives of records including...
Archaeology without borders

"... and on the "Bullettino della Commissione archeologica comunale". In the following years, a lot of archive documents were dispersed in the archives of various State and Municipality offices. thanks to this doctoral research many of those documents are now accessible in a Open access web database, and this "lost archaeology" is now accessible for researchers in a digital environment.

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TH6-06 Abstract 07

Architecture of tumuli in Kosovo

**Author** - Dr. Ass. Baraliu, Sedat, Faculty of education, Pristina, Kosovo (Presenting author)

**Keywords:** Graves, Kosovo, Tumuli

**Presentation Preference:** Oral

In this study will be treated the architecture of tumul and relation with funeral ritual. Characteristics of tumuli in Kosovo, especially during the Iron Age when their number has increased, is building variety. There are even cases when in one necropolis are noticed various types of tumuli. Tumuli in the territory of Kosovo are built with stones and soil; however, there are cases when the tumuli are built only with stones, while the soil is used as an additional element. Moreover, when the tumuli are built with soil, the stones have served for building architectural parts, such as: surrounding ring, grave constructions, cover and tumulus caim. The forms of grave construction are not the same in all necropoleis. Based on the construction, the graves can be classified as of rectangular shape, oval, elliptical circular, semi-circular as well as graves with simple pit. Each type of grave will be treated separately. Rituals and funerals ceremony will be also elaborated in this paper taking into consideration that during the ceremony and burial are followed a number of rituals and funeral ceremonies starting by building the tumulus, opening the grave and the burial process. Furthermore, in even the cases of cmentation are followed a range of rituals and ceremonies.

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TH6-06 Abstract 08

The Prussia-Museum in Königsberg/Ostpreußen.

**New archaeological research on an old archive**

**Author** - Dr. Elbracht, 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 has been brought together during more than 150 years of research from the end of the 19th centuries onwards. The fund included findings from excavations as well as documentary record covering the entire region of the former province of East Prussia. After the war, almost all collections were regarded as being lost but big parts have been rediscovered unexpectedly after the turnaround of 1989/1990 in Berlin, in Kaliningrad and in other places. The materials that remained are mainly fragmented and incomplete but still bear witness of the innerness 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 Stettin 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?

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TH6-06 Abstract 05

The Esquiline (Rome). Urban transformation and ancient topography between lost archives and Webgis

**Author** - Bosi, Valerio, archaeological consultant, Roma, Italy (Presenting author)

**Keywords:** ancient topography, Open access to archive documents

**Presentation Preference:** Oral

This paper is aimed at retracing the steps of the reconstruction of the ancient topography and of the architectural potential of an area of Rome’s historic centre, which was the subject of a doctoral thesis in Methodology of the archaeological research, disputed in February 2016 in the University of Sassari. The case-study area is the Esquiline District, located at the south-eastern borders of Rome’s inner centre, in the Middle Ages, and until the last decades of the XIX century, the Esquiline was a suburban area, where only a few religious complexes rose up in a waste area occupied by gardens and orchards and then by the aristocratic villas built in the XIX century. The landscape kept itself almost intact for centuries, as is shown in the historical cartography, from the XIX century bird’s-eye view the renowned 1748 Nolli map; this context changed sharply in a few years, when, in 1871, the city of Rome became the Capital of the Italian Kingdom, that once belonged to the Russian Empire. The Collections contain documents on the subjects of occasionally discovered artifacts; excavation documentation (field reports, including in German, photographs, drawings, maps), materials, which illustrate the architectural investigations and there projects; correspondence with European researchers and Scientific Societies, a numerous splendid photos, including glass negatives, of finds and architectural monuments; records and photographs from travels of Russian scientists in Europe, where we can find information about the museum collections and pictures of archaeological sites in Italy, Greece, France and others. Some of them have already been published, but many still remain unknown.

The documents on archaeology of European countries mainly relate to the period up to 1971 and stored in the collections of organizations and in private collections of scholars. Archival heritage of IAC, Russian Archaeological Society, Moscow Archaeological Society and personal collections of A.A. Sptin, B.V. Farmakoiskij, A.A. Bobinski, V.I. Smirnov are most interesting in this regard. All these materials can provide new documental resources for the history of European archaeology. International cooperation could give the opportunity for their best attribution and introduction to the world science.

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TH6-06 Abstract 06

The biography of two Phoenician jars from the National Museum in Poznan

**Author** - Dr. Krueger, Michal, Adam Mickiewicz University in Poznan, Poznan, Poland (Presenting author)

**Co-author(s)** - Guszew, Inga, Nicolaus Copernicus University, Torun, Poland

**Keywords:** architecture, archival holdings, Phoenician pottery

**Presentation Preference:** Oral

In the National Museum in Poznán, Gotłuchów branch, two ancient jars of clearly oriental origin can be found. Neither the provenance, nor the chronology of the artefacts is clear. This paper is willing to show that through archival, archaeological and typological studies it is possible not only to determine the specific origin and detailed chronology of the vessels, but also to reconstruct an important part of their cultural biographies. The studies of the private correspondence from the end of the 19th century between Izabela Dzialeyska, née Czartorycka, the buyer, and Alfred Louis Delattre, a French missionary and archaeologist working in Cartage, are revealing the context of acquisition of the artifacts. The archival holdings are clearly showing that the oriental art collection in 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 of Ray Fibrous spectrometry and petrographic analyses in order to get the basic information about their technology and place of production. Having in mind this data, we are able to reconstruct the biography of the jars from their ’birth’, through their deposition in a tomb in Cartage, ending in the art collection in 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 Dzialeyska.
TH6-06 Abstract 09
Roman Iron Age princely graves
Author: Prof. Schuster, Jan, Archaeology, Lodz, Poland (Presenting author)
Keywords: Archaeological data, Princely graves, Roman Period
Presentation Preference – Oral
Rich Roman Iron Age graves, equipped with Roman imports, are interpreted as being burials of persons of high status in the social hierarchy. Unfortunately a lot of these graves were discovered by accident and the documentation of the finds is poor. So one can say, an inexpert discovery is quite a main attribute of the Roman Iron Age princely graves. Needless to say this fact means a big loss of information. A second, not less important point is the state of analysis and publication of the finds. Not infrequently we actually do possess more informations than published. It is difficult to explain, but especially in case of princely graves very often not all data were released in publications. Studies of old finds, stored in the magazines of museums, deliver new data and give new basis of interpretations. This will be shown by the example of some so-called princely graves of the Lubusky type.

TH6-06 Abstract 10
The Oscar Almgren’s Archive.
At the Roots of the Roman Period Archaeology
Author: MA Szter, Isabella, Museum für Vor- und Frühgeschichte, Berlin, Germany (Presenting author)
Co-author(s): Chilinska-Frubes, Agata M.A., Instytut Archaeologii Uniwersytetu Warszawskiego, Warsaw, Poland
Keywords: archive, Roman Period, Oscar Almgren, Swedish National Heritage Board in Stockholm
Presentation Preference – Oral
Oscar Almgren was one of the most famous archaeologists who dedicated his work to issues concerning the Iron Age. His PhD thesis Studien über nordeuropäische Fibelformen der ersten nachchristlichen Jahrhunderte mit Berücksichtigung der provenzialrömischen und südägyptischen Formen was a milestone in the archaeology of the Roman Period. It was defended and published in 1897.

The significance of Almgren’s work results not only from an in-depth analysis of fibulas but also from a wide territorial range of his research. In the end of the 19th c. this Swedish archaeologist studied finds present in at least 117 museums placed all over Europe. The private archive of Almgren is an important result of those studies. Currently it is held in the Swedish National Heritage Board (Riksantikvarieämbetet) in Stockholm.

Our paper will be one of the first presentations concerning the legacy of Almgren. His archive is a rich and diverse set of documents. Among others it contains press cuttings, letters, notebooks, manuscripts, as well as personal photographs. Emphasis will be put on presenting a card file (among other things so called Fiduros), which is the largest and the most compelling part of the whole archive. Its content can be estimated at over 6000 of sheets with artifacts fine pencil drawings and information. It is also worth mentioning that Almgren collected data concerning not only fibulas but also on other finds (e.g. Roman imports, weapons, bracelets, necklaces or buckles and belt fittings), which is an important contribution to chronological and regional studies. Materials present in the archive are of very high scientific value and importance. For many archaeological objects lost during the Second World War it is often the only surviving documentation.

TH6-06 Abstract 11
The finds of the Przeworsk and Wielbark cultures in the archives of Herbert Jankuhn
Author: Dr. Cieśliński, Adam, University of Warsaw / Institut of Archaeology, Warsaw, Poland (Presenting author)
Keywords: Eastern Prussia, Herbert Jankuhn, 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 litoral in the roman period. During his PhD work he created a huge card index containing drawings and descriptions of finds from the former Eastern Prussia. These files are kept now in Archäologisches Landesmuseum in Schleswig. In the archives there are information about artifacts from Prussia Museum in Königsberg, which were destroyed or dispersed during World War II. The paper presents materials from sites of the Przeworsk and Wielbark cultures in the area east of the lower Vistula.

TH6-06 Abstract 12
The Herbert Jahnkuhns scientific legacy – an old archive as a source for modern research
Author: Prof. Nowakowski, Wojciech, Institut of Archaeology, Warsaw University, Warsaw, Poland (Presenting author)
Keywords: Archives, East Prussia, Jankuhn
Presentation Preference – Oral
Herbert Jahnkuhn, one of the greatest, albeit most controversial characters of the 20th century German archaeology, is known primarily as a researcher of Hallstatt emporium (Schleswig), or as one of the initiators of the new edition of the monumental Reallexikon der Germanischen Altertumskunde publication. However, it is worth to remember that the beginning of his scientific career (determined by his doctoral thesis submitted in 1931) was related to his home country – East Prussia.

The main subject of his doctoral thesis was the Early Roman Period in Samland. Nevertheless Jahnkuhn collected data from the whole region of East Prussia, going well beyond the scope of the defined geography and chronology. He created over a dozen hundreds of cards with notes and drawings, documenting few thousands of finds from the Roman, as well as the Migration Periods originating from the vast area between Lower Vistula and the Nemunas. Fortunately, scientific legacy of Jahnkuhn has survived the Second World War and is kept in the Archives of Archäologischen Landesmuseums Schleswig.

The personal registry of Jankuhn, created as a starting point for his doctoral dissertation, had some limitations. It didn’t include descriptions of pottery or peculiarities of funerary rites. But, despite these gaps and constraints, Jankuhn’s card files allow the modern researchers to reconstruct the archaeological picture of East Prussia during the Roman Period. First of all, long sequence of grave assemblies can be established, helping to clarify different problems of chronology. For example, the separation of a large group of objects with eye-brooches of the Almgren 61 type, marks the latest stage of BZ phase. In spite of appearances, it is not the antiquarian problem only – precise dating allows to determine concentrations of archaeological sites that can be identified by Galindai and Soutdoino mentioned by Polaký and as such it could serve as an excellent starting point for the reconstruction of the European world of Barbaricum. Although, as it was mentioned before, Jahnkuhn’s registry was dedicated to research the Early Roman Period, it included also data on large series of finds from the Late Migration Period. One of the most interesting objects is the iron scabbard from Mazurian cemetery in Miejkie (former Mieglen), Scandinavian import, and the first find of this type in East Prussia. This shows clearly that, although other scholars, primarily F. Jakobson, documented the Migration Period of the East Prussia, Jahnkuhn’s archive could be a valuable source of research for this period.

In conclusion it has to be stated that Jankuhn’s archive forms a very rich source for knowledge about east-Prussian “lost archaeology”.

TH6-06 Abstract 13
The cemetery of Linkuhnens (Rævskoe): A case study on the potential of archival archaeology
Author: Dr. Jahn, Christoph, Museum für Vor- und Frühgeschichte Berlin, Berlin, Germany (Presenting author)
Keywords: Archival data, East Prussia, Prussia collection
Presentation Preference – Oral
In the last 20 years, colleagues from Germany, Poland, Russia and Lithuania have collectively worked on the reconstruction of the archaeological in former East Prussia before WW II. The re-evaluation of archaeological research before 1945 in the region between the Vistula River in the west and the Nemunas River in the northeast remains a puzzle with many pieces missing but is of great importance to the modern archaeological research in Poland, Lithuania and the Kaliningrad Oblast due to the extremely dense distribution of archaeological finds.

One of the “lost” archaeological sites is the cemetery of Linkuhnens at the Nemunas River, which was excavated between 1928 and 1939 by the Prussia Museum in Künigsberg (Kaliningrad), with a large number of finds from the Roman Iron Age, Migration Period and the Viking Age. The results were never properly published and all objects were considered to be lost after 1945. With the re-discovery of the Prussia collection and archives in Berlin in 1990, colleagues from different countries established a scientific network to open up archival sources for international research. The cemetery of Linkuhnens can serve as an example of the potential that still lies within the archaeological and archival material that survived at different institutions all over Europe.

The reconstruction and analysis of the original field documentation and other archival sources show the importance of Linkuhnens for the very first time: the cemetery was used for over 1000 years from the Roman Iron Age and the Migration Period to the Viking Age with almost 500 burials and 5000 grave goods. With over 150 swords from the Viking Age, Linkuhnens is the biggest site of Viking Age sword weaponry in the Baltic and Scandinavia. We also know of nine swords with Ulfberht inlays, what makes Linkuhnens the site with the highest number of Ulfberht blades in Europe. The presentation deals with the problems and solutions during the process of re-evaluating the archaeological significance based on the objects and archival material from Linkuhnens.
TH6-06 Abstract 14

The late Iron Age burial mounds of Wiskiauten. New perspectives from old material

Author - Deerschak, Nina, Romano Germanic Commission of the German Archaeological Institute, Frankfurt am Main, Germany (Presenting author)

Keywords: burial mounds, European Archives, Vikings in the Baltic

Presentation Preference - Oral

The cemetery of Wiskiauten is located at the south-western corner of the Curonian Lagoon, close to Zelenogradsk in the Russian Kaliningrad Oblast. Immediately north of Wiskiauten lies a small forest known as Kaup, where a large burial site with Scandinavian grave goods was found. The burial site may have originally consisted of up to 600 burials. Unfortunately, it is difficult to reconstruct the original layout and structure of the cemetery due to the lack of excavation documentation. As a part of the former Prussian state, the area around Wiskiauten has faced profound changes between German, Soviet and Russian rule and administration. These circumstances have led to the loss of a large part of the early research documentation and most of the finds, especially during the 2nd World War and the resulting destruction and plundering of the Prussian Museum in Kaliningrad. After the War large parts of the documentation and a small number of artefacts reappeared in different parts of Europe. Consequently, today material from Wiskiauten can be found in Stockholm, Olsztyn, Berlin, Marburg, Schleswig, and of course Kaliningrad. These complex conditions could explain why a complete presentation of the research results has never been published, although archaeological interest in the site is unbowed. Since the 1870s, at least 12 different excavation teams from Germany, Sweden and Russia have worked on the grave mounds of Wiskiauten and the archaeological investigation is still ongoing under Russian guidance. Thus it is the aim to give a complete presentation of the research results available from all accessible excavations in Wiskiauten, and to reassess the conclusions from the early days of archaeological research. Moreover, it is essential to compare the grave architecture and the material culture of the burials in order to connect them to local Scandinavian customs, as well as to similar sites on the Baltic Sea and in Russia that have burials with Scandinavian links, in order to reevaluate the duration and nature of Viking presence in late Iron Age Wiskiauten.

TH6-06 Abstract 15

Rooted in the past: A new chronological classification for the early medieval Tyne-Forth cemeteries

Author - Drane, 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 5th-8th centuries. This paper explores the early medieval funerary data in the Tyne-Forth region (Northeast England-Southeast Scotland), obtained from late 18th and early 20th century excavation; and attempt to find a systematic approach to analyse the data.

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 concern, this paper seeks to challenge the idea of undefined chronologies 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 AmelaiI, to compensate for missing grave-good data through multiple imputations, creating a new typology based chronology of cemetery sites for this region.

TH6-06 Abstract 16

Excavating an Archive - The Irish Viking Graves Project

Author - Dr. Harrison, Stephen, University of Glasgow, Glasgow, United Kingdom (Presenting author)

Keywords: Archives, Ireland, Vikings

Presentation Preference - Oral

Nineteenth-century Dublin saw the recovery of a substantial assemblage of Viking artefacts from several parts of the city, and particularly from the Kilmainham-Islandbridge area. Unfortunately, very little of this material was published at the time, and the surviving manuscript records are limited and contradictory. The Irish Viking Graves Project was set up to address these problems, and to produce the first comprehensive and accurate catalogue of these artefacts and the furnished Viking graves that they clearly represent. To do this, the archives of the National Museum of Ireland were scrutinised, along with the archives of the Royal Irish Academy, to create a comprehensive archive analysis, considering features such as date, function, and authorship, and grave-goods from Dublin were recorded at several institutions in Ireland, the UK and Denmark.

This project discusses the methodology used by the Project, which moved beyond archival records to consider the relationship between these manuscripts and surviving artefacts in various museums, as well as the relationship between the archives and cartographic evidence for Viking graves. By doing this, the paper demonstrates the potential of research of this type, and provides an Irish perspective for this session.

The paper will also engage with key research issues. Now that the catalogue has been published, we have the first (accurate) list of grave-goods from Dublin, divided into acquisition groups and linked to more or less specific localities around the modern city. But how can this new evidence be used to investigate Viking activity in the Dublin area and farther afield? Potential areas of future research include investigations of topography, which suggest links between burials and boundaries at local and regional levels; the use of artefacts to promote and sustain identities at multiple levels; and scientific analysis of some of these artefacts. Again, this will provide an Irish perspective on these key issues.

TH6-06 Abstract 17

Forgotten maps – important information about the 3rd century AD graveyad Håven, Mecklenburg

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 Håven, Ludwigsdorf-Parchim District in western Mecklenburg, which are archived in Wiligrad Castle north of Schweinich, provide a very interesting insight into the lively scientific exchange between Lisch and leading Scandinavian archaeologists such as Conrad Engelhard, Christian Friedrich Herbst, Hans Hildebrand, Jenc Jacob Aamussen 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 3rd century AD. The grave categories as well as the grave furniture can be clearly differentiated: some grave-shaft affinities with types found on Zealand in the North, while others are more similar to graves of the Hassleben-Leuna-group in Central Germany in the South. It seems that Håven was in fact a staging post between these two centres.

TH6-06 Abstract 18

The gift of director of Königsberg’s museum Bezenberger

Author - Dr. Khomjakova, 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 Euscan 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, written in old Russian orthography, the collection came to in the Museum not as the result of II World War, but before 1818. The right side of the plate contains two strands of beads from Livland and «Euscan graves». Most interesting are names of places of finds» from the left side: Reussen, Stobingen, Lötzen, Trausitten, Kalberg bei Rantau, Warengen, Polwitten, Grebieten, Daumen, Eschendorf, that are correlate to the names of graveyards from East Prussia, that were excavated in second half and the end of 19th century. Finds from these graveyards kept in Prussia-Museum in Königsberg. Miserable, but curious data in register reads as it was “gift of director of 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. Virsna, Ingrida 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.

Archival Archaeology: systematic mapping, identification and research, SW Courland

International cooperation of archives in the study of archaeology of the Bashkir Urals

Author: Shuteleva, Iia, Ufa, Russian Federation (Presenting author)
Keywords: archives, international cooperation
Presentation Preference - Poster

The issue of fragmentation and disunity of archaeological documents stored in the archives of the Republic of Bashkortostan was raised in the beginning of the 1990s. Data restoration about archeological monuments and finds of the Bashkir Urals was made possible owing to international cooperation. Materials about the region’s archaeology 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 Static Committee, since 1867 it became the Provincial Museum (at present - the National Museum of the Republic of Bashkortostan). Ufa provincial archives (now the Central Historical Archives of the Republic of Bashkortostan) started to be formed in 1919. After formation of the Academy of Sciences in 1932, a scientific archive of Ufa Scientific Center of RAS started operating. Such diversity of the archives led to fragmentation of archaeological materials and sometimes even to their loss. Reorganization of the archives and document funds often results in loss of archaeological documents. Part of the archaeological archive materials can be transferred to some organizations after their death, which also leads to partial loss of the material, for instance, again, the long-suffering R.O. Kuzeev’s fund. If the World War II became the most destructive for the archival funds in some regions of the USSR, other processes can be observed in the rest of the country. The processes of mass loss of archival materials are related to revolutionary events and the Civil War. Active passion for archeology of the most educated part of society spread in the Ural region, led to the exchange of archaeological information with the European scientific elite. In the fund by E.H. Mirms (Cambridge University Library: Manuscripts) a fragment of correspondence between A.Pashkova, the owner of Woolaversky plants (05.09.1913), and E.H. Mirms 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.
were found in Klaipėda castle and nearby town cultural layers. The author calls into question the possibilities to interpret such goods could also affect crusaders. 

The discussions aim to conjoin medieval archaeologists working in the academic, government and commercial sectors and to encourage students to research the period by attending the EAA conference and our Forum. In addition to invited speakers and speakers from the floor, the Round Table will be chaired by Dr. Dries Tys, Dr. Gitte Hansen, Dr. Sally Foster and Dr. Katarina Predovnik.

Keynote Speakers:

- Lithuanian medieval archaeology, Prof. Kuncencius, Albinas (Vilnius University, Lithuania)
- Early medieval horse cemeteries of Prussia and Central Lithuania on a comparative scale, Dr. Shirouhov, Roman (Vilnius University, Lithuania)
- Cultural resilience and adaptation at the frontier: Klaipėda and Žarde pottery analysis, PhD student Ubis, Edvinas (Klaipėda University, Lithuania)
- Future archaeologies of the "Great Wilderness": Crusading, depopulation and colonisation in the frontiers of Lithuania, Dr. Puszkowski, Alesks (University of Reading, United Kingdom)

TH6-07 Abstract 01
Cultural resilience and adaptation at the frontier: Klaipėda and Žarde pottery analysis

Author - PhD student Ubis, Edvinas, Klaipeda university, Klaipeda, Lithuania (Presenting author)

Keywords: frontiers, medieval archaeology, pottery

Presentation Preference - Oral

This presentation focuses on pottery, which were found in two nearby settlements: a) Klaipėda (Memel) castle and town; b) Žardė settlement. These settlements are about 8 kilometers from each other. The first one represents Baltic crusaders and the second one local community. Klaipėda was founded at year 1252. This event led to the transformation of the region to the frontier and borderland between two countries and two cultures (Christian and Pagan). Besides it can be said, that these structural transformations created some sort of the “Third space” in nowadays Western Lithuania in which were possible negotiations, translations and remaking. From historic sources, it is known that Livonian order cooperated with local nobility. However, there are no information about impact from newcomers to local community in their daily life. On the other hand, local traditions and goods could also affect crusaders.

The analysis is focused on the pottery complexes analysis and comparison of them. The main aim was to identity pottery groups, which in process of interactions between local and crusader communities were imported and possibly came from one to another site. The analysis showed that locally used so called “German” style greyware pottery, but there were not found to the newcomers to the region (for example proto stoneware). On the other hand, only small number of local tradition pot were found in Klaipėda castle and nearby town cultural layers. The author calls into question the possibilities to interpret such artifacts as markers of interaction, adaptation, resilience or ascension processes in two culturally different communities.

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 ecotones, where scarce or unreliable water resources require 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 inland 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.
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 (2040-1550 BCE) and the southwards shift of the center of the settlements at the end of the Late Bronze Age (1550-1500 BCE) were strongly connected to water management. Despite the analysis of the ancient Murghab alluvial fan on a macro-scale area, data coming from micro areas showing the ancient hydraulic network are relatively scarce. This paper presents the first results of the preliminary remote sensing analysis conducted on the basis of satellite imagery, aerial photos and cartographic maps for the sedentary sites area of Topqol 1, Adj K 1 and the nomadic site area of Site 1211-1219 and Ojayki. The aim is to analyze the different water management strategies of both sedentary and nomadic settlements and their possible interaction.

Water management in the Iron Age and landscape taphonomy of the Serakhs oasis (Turkmenistan)

The Serakhs oasis, located in southern Turkmenistan near border with Iran and Afghanistan, is a subject of study of the Polish-Turkmen Archaeological Mission headed by prof. Barbara Kaim since 1995. Due to field surveys conducted here since 2007 above 170 sites of different periods were discovered, which enabled the study of oldest settlement pattern and the water management system in particular periods. The best recognized oldest settlement pattern currently is the Iron Age (Yaz culture).

Above 700 sites with the characteristic pottery of Yaz I-II periods (circa 1400-330 BC) have been discovered in Central Asia, north-eastern Iran and Afghanistan by various studies carried on since the beginnings of the XX century. Many of the sites where connected with Achaemenid Empire, while large extent of settlement along with associated canals were used as proof to existence of large scale irrigation networks in Central Asia.

The water management system of the Serakhs oasis is one of the most important subjects of study of the mission. The recent approach is based on the deeper analysis of the context of the sites with use of Geographic Information System environment. The ArcGIS database, which gathers satellite imagery, digital elevation data, topographic maps, the vector data related to hydrology, the analysis of mentioned data, presented in the paper, makes it possible to investigate the water management system in Yaz periods in the Serakhs oasis. The topographic maps, high-resolution satellite imagery made in different periods of time and SRTM derived levies are used followed by deep analysis of landscape taphonomy of Serakhs 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.

The archaeology of water management in context of west Khurasan, Tapeh Damghani, Sabzevar city

Located on the edge of an alluvial fan near Sabzevar city in Iran, Tape Damghani is an archaeological site containing late Chalcolithic and early Bronze Age evidence. The surveyed site is 100 hectares, and excavations were conducted on the 6-hectare core of the site, at the end of the slope towards the Kal Shur river. The excavation was conducted over two seasons. During the second season, the excavation concentrated on four workshops. The northern ones, workshop II and III, revealed a series of brick walls. These walls were buried under two meters of natural deposits caused by floods from the 2nd millennium BC, leading to excellent preservation. The context and architectural construction suggest that these walls are the remains of water resource management structures: preliminary dams for controlling river flooding, obtaining surface water, and redirecting water to canals.

This research will examine evidence from Workshop II and III of Tape Damghani in the context of site location, landscape, and environment that suggest adaptive methods of water control. The excavations are supported by the City Museum of Sabzevar, which is planning to develop an open-site museum by the Tehran–Mashhad highway.

The Spread of Fruits along the Silk Road

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 Taushubur archaeological site (a.D. 900–1200) is illustrating the importance of these crops in Central Asia during the height of Silk Road exchange, during and shortly after the Tang Dynasty (A.D. 618–907). The site was occupied by people in the Karashand Khana tur (A.D. 840–1212) and was likely a high-elevation mining town. Preserved plant remains near the central square of the ancient occupation site paint of picture of the types of fruits and grains available in markets along the Silk Road. Archaeobotanically tracing the path that plants followed on their long journey across Central Asia, provides us with a map laying out the early routes these foods took to ultimately reach our dinner plates today.
TH6-09

SOCIAL AND GENDER COMPLEXITY THROUGH THE ARCHAEOLOGICAL REMAINS IN HOME HOUSING

Thursday, 1 September 2016, 11:30-13:00
Faculty of Philology, Room A7

Author - Dr. Andrea D'Ambrosio, Faculty of Philology, University of Genoa, Genoa, Italy (Presenting author)
Co-author(s) - Marco Franchi, Elena, Etat de Vaud, Sipal, Archéologie cantonale, Lausanne, Switzerland
Co-author(s) - Daniela Spaggiari, Elena, Etat de Vaud, Sipal, Archéologie cantonale, Lausanne, Switzerland
Co-author(s) - Fiammetta Bartoli, Elena, Etat de Vaud, Sipal, Archéologie cantonale, Lausanne, Switzerland

Keywords: activity areas, household unit, social complexity

Presentation Preference - Oral

TH6-09 Abstract 01

Studies on remains of daily activities from the LBK Neolithic settlement

Author - Dr. Andrea D'Ambrosio, University of Genoa, Genoa, Italy (Presenting author)
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Co-author(s) - Daniela Spaggiari, Elena, Etat de Vaud, Sipal, Archéologie cantonale, Lausanne, Switzerland
Co-author(s) - Fiammetta Bartoli, Elena, Etat de Vaud, Sipal, Archéologie cantonale, Lausanne, Switzerland

Keywords: activity areas, 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, figurines, fragments of stone tools and grain remains) allow us to distinguish two main types of activity zones: domestic activities and food preparation, 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 - Dr. Andrea D'Ambrosio, University of Genoa, Genoa, Italy (Presenting author)
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Co-author(s) - Daniela Spaggiari, Elena, Etat de Vaud, Sipal, Archéologie cantonale, Lausanne, Switzerland
Co-author(s) - Fiammetta Bartoli, Elena, Etat de Vaud, Sipal, Archéologie cantonale, Lausanne, Switzerland
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Keywords: lake dwelling, Neolithic, session, tasks sharing

Presentation Preference - Oral

TH6-09 Abstract 03

Traces of households, activity areas and social inequality in a Late Copper Age site in Hungary

Author - Dr. Balázs Tóth, University of Szeged, Szeged, Hungary (Presenting author)
Co-author(s) - Zsófia Széki, Hungarian National Museum, Budapest, Hungary
Co-author(s) - Ágnes Szabó, Research Centre for Humanities of HAS Institute of Archaeology, Budapest, Hungary
Co-author(s) - Corina Drăguț, Hungarian National Museum, 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. Our 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 delimited areas and within a delimited timeframe. In my work I aimed to define the spatial and temporal limits of households and to determine the remains of which activities within a household have been preserved. The interpretation and comparison of these hypothetical households as units and scenes of social and gender inequality was carried out from a variety of standpoints, among others from that of consumption, specialization and diversity. The starting point of the research is provided by the finds and observations on settlement structure made during the excavations at a Copper Age site. The study of the site is complemented by natural scientific – archaeological, anthropological, petrographic, geochemical, and radiocarbon dating – analyses, and environmental archaeological data from the region Transdanubia in Hungary. The processing of the finds was followed by the detailed qualitative and quantitative analyses of the materials of the pits and the pits themselves (correspondence analysis, one-way correlation analysis) according to the observed groupings. With the help of the spatial statistical and GIS analysis of the finds, the mapping of the distribution of the finds enabled the quantitative and qualitative study of the various classes of finds, which could help us to shed light on the distribution of activities and traces of social inequality taking place within and outside the households.

TH6-09 Abstract 04

Culture and society of a Hellenistic site: houses and artefacts of Sicilian city of Finziade

Author - Dr. Stefano Fasulo, University of Messina, Messina, Italy (Presenting author)
Co-author(s) - Biagio Raffa, Alessio, CNR-IBAM Cateni, Messina, Italy

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-1 centuries B.C.

The houses are in fact one of the rare cases of recent stratigraphic studies of residential complexes of Sicily and also, not recording a settlement continuity in imperial times, have no relevant accretions after periods.

The well-preserved houses, in fact, allowed to identify the intended use of the spaces and thus to enable to carry out an analysis of 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 a tank for collecting rainwater. Around it revolved every room of the house, including the dining rooms, bedrooms, bathrooms and kitchens.

Themes will therefore be treated associated with daily life, especially in relation to material culture. Some kitchens, for example, are well associated with hobs, tables and stoves as well as the functional ceramic sets to the preparation, the service and food consumption. The most important rooms of the houses have also returned the wall decorations and floor of great value, which are an indicator of the medium-high socio-economic conditions of the owners.

Particular attention will be devoted to domestic cults, in fact every house possessed an environment characterized by the presence of an altar complete with artefacts relevant to the performance of rituals, demonstrating a particularly common practice...
We have found women burials that can be dated to the early middle ages. Surprisingly these burials don't show the typical grave goods for women like pottery or jewellery instead weapons were found. The archaeological research has difficulties to accept these burials as women tomb because the grave goods are typical for man ones. The anthropologist results were ignored and the female skeletons were declared to be male ones. Supporting their decision by saying that during the early Middle Ages the social gender is not like the biological gender. Anyway, women with weapons are not known just for the early middle ages but also in the 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 fulfil the stereotyped of womanhood. Men were shocked when they found out that they have fought against women. The reason why a woman joined war are various: poverty, a bad childhood, desire for adventures or a problem with their natural gender. With the beginning 20th century emancipation was another reason why women turned into army service.

At the first World War it was emancipation which brought woman to the army. When war was nearly over woman had to leave the army and be again a housewife and mother. Their performance at war was not remembered and the women where left alone with their troubles and trauma.

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 were paid for a baby girl and 600 solid for a baby boy from this forced marriage can be devalued it. The high wergeld was an insurance for the girl not to be killed by her new family. Girls who engaged very early to the family in law might be too pay debts or as sign for a contract as well as a sign for an alliance or as sign that a vendetta is over. The wergeld should save the girl's live at the family in law, so that they cannot afford it to kill the maid and repeat their old demands. An escape by divorce was for the womenfolk mostly not possible due to laws or social grounds.

The gap for the weapon must have been for some women or girls the exit from a forced marriage.

**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 be male ones. Supporting their decision by saying that during the early Middle Ages the social gender is not like the biological gender. Anyway, women with weapons are not known just for the early middle ages but also in the 5-3 Century BC in the Asiatic/Russian area.

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The gap for the weapon must have been for some women or girls the exit from a forced marriage.

**TH6-10 Abstract 01**

**Anthropology of iron craft in the Canigou mountain (Antiquity-Early Middle Ages)**

**Author:** Dr. Vaschalde, Christophe, 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 3rd c. B.C. and the beginning of the 1st 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, anthropological research on ancient and medieval metallic iron remained scarce, probably because of the lack of studied sites for this period. Since 2014, a new interdisciplinary and diachronic research project aims to study Canigou mountain’s iron industry and trade. In 2015, archaeological surveys were realized in the valley of the Lentill (Canigou mountain) in four rejects from iron ore reduction, dated from the 5th to the 9th c. AD. The first anthracological 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 (scrub) and/or sclerophyllous mixed oak forest might have existed. The presence of some species (Buxus sempervirens, Erica, Laguminosae) 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 presence 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 metalurgical activities on landscapes, future studies...
TH6-10 Abstract 02
The use of charcoal in metallurgy (Iberian Peninsula, 14th and 15th centuries)
Author - López RIVER, Javier, University of Córdoba, Córdoba, Spain (Presenting author)
Co-author(s) - Córdoba de la Llave, Ricardo, University of Córdoba, Córdoba, Spain
Keywords: Charcoal, Late Middle Ages, Metallurgy
Presentation Preference - Oral
Among the various raw materials offered by the forest, the charcoal had a leading role. This is one of the most used fuels throughout history, thanks to its high calorific value. In the Late Middle Ages, it became a must for industrial processes as a source of thermal energy, especially in the field of metallurgy. Based on the information provided by the documentary sources of the time, the aim of this paper is to analyze the use of this natural resource in Hispanic metallurgy, to know the types of existing charcoal, to examine the works they were designed to and to give some trends about commercialization in the 14th and 15th centuries.

TH6-10 Abstract 03
Synthesis of the anthracological approach
Author - Dr. Vaschette, Christophe, ISEM UMR 5554/L43M UMR 7298, Montpellier, France (Presenting author)
Keywords: Anthracology, Craft, Fuel
Presentation Preference - Oral
During historical times, fire was one of the main energy used for industry, craft and domestic activities. For the past 30 years, anthracological analyses were realized in Mediterranean France on nearly 80 ancient, medieval and modern sites. If several activities are now well documented (charcoal and lime burning, pottery, cremation), no global approach has been attempted so far. An inventory was realized, based on a broad range of activities (ceramic, charcoal, lime, vegetal exhalations, food, metal, glass, textiles, leathers, soap, salt, plaster) gathered in a same data basis. In order to understand phenomenon of rupture and continuity of the practices, the corpus comprises a chronology going from the Romanization to the Industrial Revolution. Craft and industry constitute the major part of the corpus. This work raises new questions. Currently, archaeologists aim to link the use of fuel with the type of products made (ceramic, lime, glass, etc.). Also, they affirm that some taxa have a calorific value more important than others, and that charcoal use has a calorific value more important than others, and that charcoal used for the fuel regarding the 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 thermal and technical necessities (i.e. concentration of fire, or, on the contrary, circulation of fire in the kilns). Indeed, the choice of fuel does not always rely on the choice of a taxa for itself but on other criteria such as morphology, caliber, humidity level, etc. Furthermore, we propose a different interpretation of anthracological data. Generally, 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” (distribution of charcoal coming from a same tree in order to fuel different activities). Recent methodological developments will be introduced, such as the restitution of calibers, or the observation of tools marks, bringing information on the preparation of the fuel. By crossing anthropological data with medieval and modern tests, a socio-professional approach of the preparation of the fuel will also be possible. At last, the energetic transition towards the use of fossil charcoal will also be attempted.

TH6-10 Abstract 04
Fuel Selection and Forest Management by Middle Age Belgian Brass Blacksmiths Along the Meuse River
Author - Dr. Chevalier, Alexandre, Royal Belgian Institute of Natural Sciences, Brussels, Belgium (Presenting author)
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Keywords: Forest consumption, Limousin, Woodland
Presentation Preference - Oral
The influence of the Mosan copper and alloy industry, in particular brass production during Middle Age Western Europe, is an irrefutable historiographic fact. Cautions, bows, and pans produced in the town of Dinant as well as in the nearby Bouvignes, were exported throughout French and English kingdoms, as far as Barcelona in Spain. In the 15th century, copper alloy artifacts produced in the Dinant region were so highly prized and considered that the town’s name of Dinant was used in Paris to designate the bolemakers, or the dinandiers (coppersmiths).

Copper metallurgy in the Meuse region dates back at least to the Merovingian dynasty, with a workshop uncovered in the town of Namur at the “Grongnet” site, dated to the 6th century. The copper metallurgy boom at the turn of the 12th century in both Dinant and Bouvignes is due to several causes. Although the Meuse region lacked copper and tin ores largely used in Middle Age metallurgy, very good communication ways provided by the Meuse River and its tributaries, as well as the establishment of strong commercial ties with the German towns of Cologne and Dormund for copper supplies and with London for tin supplies, overcame this natural limitation. In addition, merchants were allotted specific privileges with the German towns, while a charter allowed them to establish a trading post on the Thames River. The dynamism of the Mosan merchants cannot however explain this metallurgy industry boom alone. Indeed, the Meuse region is rich in two products that are necessary for brass production: calamine that contains zinc oxide and natural refractory clay, dele, that is appropriate to build bricks, hearts, smelters and molds. 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 archaeological excavations have taken place under the supervision of the Walloon Archaeological Service in the towns of Bouvignes and Dinant. Theses excavations uncovered several coppersmiths buildings, with their workshops and domestic spaces.

We will present the results of wood charcoal analyses from four different sites – Bouvignes Porte Chevalier, Dinant Oldals, Dinant Rateau and Dinant Churchill – that represent 13 different coppersmith workshop spaces dated between the 13th and the 16th centuries. Because Dinant and Bouvignes were competitors and depended on two rival political entities, our results are highly significant in terms of territory exploitation and cultural identities along the Meuse River.
Between the 18th and 20th centuries the Limousin region was notably lacking in woodland: the level of forest in the landscape was less than 10%. However, it was during this period that the development of the Limoges porcelain industry, a major fuel consumer, took place. Alongside this industrial boom, the urban population was also thriving, thus the need for fuel in the city became even greater.

The 19th century was a period that put great pressure on firewood resources and one wonders how, and to what extent, the population and industry in the city of Limoges were able to meet their considerable fuel requirements. We therefore look at sources that can better trace the evolution of fuel consumption in Limoges. By combining historical sources, we analyse the heavy fuel consumption of the city of Limoges in relation to resources available in the region and describe the different procurement strategies implemented. The importance of the porcelain industry is discussed and we make a start on the evolution of the wooded landscape in the Limousin.
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 the finds. That kind of information is also found in reports about other important monuments such as the settlements of Kunda and Tamula. Is it possible for us today to rely on the results of excavations conducted 50 and more years ago, and prove that these archaeological monuments contain evidence also about pile dwelling? And if this is not possible to be done with archival research, then which studies and methods could give a result?

**TH6-11 Abstract 03**
The settlements of Kryvina peat-bog region in the context of cultural changes of 3-2 millennium BC

Author - Charniauski, Maxim, Institute of History NAS of Belarus, Minsk, the Republic of Belarus (Presenting author)

Keywords - Kryvina peat-bog region, Late Neolithic, Bronze Age, Northern Belarus (Lakensk region)

Presentation Preference - Oral

Kryvina peat-bog is an archaeological microregion located in Viciebsk region of the Republic of Belarus (south of Belarussian Lakeland geographical region). To date, there are 10 archaeological settlements of Neolithic - Bronze Age period. The earliest belongs to the 4th millennium BC, and the most recent - to the middle/3rd quarter of the 2nd millennium BC. The majority of the sites of the region are presented by the materials of 3rd - first half of 2nd millennium BC which belongs to Usvyaty and North-Belarussian cultures. 9 monuments preserve organics in the cultural layers, 8 of them are peat-bog sites. The most studied settlements of the micro-region are Krivina 1, Asasvets 2 and Asasvets 7. Settlements. Since 2018, the Asasvets 2 settlement was annually researched by the joint expedition of the Institute of History of NAS of Belarus and the Faculty of History of Belarus State University under the guidance of Michal Charniauski and Maxim Charniauski. In the southern part of the site 27 square meters were excavated. The use of new approaches in the field studies and the analysis of the received materials (in comparison with former methods) has allowed to clarify and obtain new information on the household, material and spiritual culture of the population of the region. We should also mention the identification of the immediate materials of the circle of Corded Ware cultures and the Globular Amphora culture on the settlement, which allowed to reconstruct the process of transformation of Ustyevity 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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The Neolithic and Early Metal Age wooden construction of site Okhta 1 in St. Petersburg (Russia)

The Neolithic and Early Metal Age wooden construction of site Okhta 1 in St. Petersburg (Russia)

Author - Dr. Gusetetsva, Tatiana, Scientific and Research Institute for Cultural and Natural Heritage, Saint Petersburg, Russian Federation (Presenting author)

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Presentation Preference - Oral

The Neolithic and Early Metal Age wooden construction of site Okhta 1 in St. Petersburg (Russia)

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.
TH6 Abstract 07
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. In-situ spatial analysis of different categories of remains have been explored in order to set boundaries and relationships between different areas.

TH6 Abstract 08
Wood architecture in the Early Neolithic (5300-5000 cal BC) site of La Draga (NE of Ibérica)

Author - Dr. Órós, López-Buló, Universitat Autònoma de Barcelona, Barcelona, Spain (Presenting author)
Keywords: Early Neolithic, Iberian Peninsula, Pile-dwelling
Presentation Preference - Oral

La Draga is the only Neolithic pile-dwelling site of the Iberian Peninsula. It is located on the shore of the Banyoles Lake (Girona, Spain) in the North-east of the Iberian Peninsula. The site was occupied during early Neolithic (5300-4900 cal BC). The remains of wood recovered at the site have been studied with the objective of characterizing the wood management process: obtaining of raw material, woodworking technology and the use as tools or construction elements. All this process is usually hidden for archaeologists, 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- and 3D modeling.

In this work are summarized the result of the analysis of the architectural elements. We'll outline the main characteristics of the building process of the wooden constructions at La Draga, from the obtaining of the raw material to its use for architecture, through its elaboration process.

The analysis of architectural elements (beams, posts, slabs, framework, etc.) show in one hand the predominance of certain species of raw material, season of obtaining, diameters and supports selected. In the other hand it has been spotted certain predominance on the elaboration process. Finally, a few master lines of the construction structure have been spotted.

TH6 Abstract 09
Dry land and lakeside settlements in the region of Four Lakes at Amindeon Basin (Greece)

Author - Dr. Chrysostomou, Panikos, Greek Ministry of Culture and Sports, Florina Ephorate of Antiquities, Amindeon, Florina, Greece (Presenting author)
Keywords: Western Macedonia
Presentation Preference – Oral

The surveys and excavations of the last years in Amindeon region conducted by Florina Ephorate of Antiquities, resulted in the discovery of several prehistoric dry land and lakeside settlements dated from the late 7th to the late 2nd mil. BC. Some 31 new habitations were spotted in an overall area of approximately 550 hectares, from which 15 sites were partially or totally excavated, covering an area of 25 hectares. From the preliminary overall approach of the excavational data so far yielded, the development of a unique culture in the region is documented, with an active contribution - especially during the earlier phases - to the neolithisation of Balkans, as part of the basic arcs of populations and ideas mobility from the south-eastern Balkans towards central and northern Europe. The location of the settlements confirms the special relationship that local neolithic communities developed with wetland-environment, an interaction sustained with an impressive adaptive trajectory throughout prehistory. Even during Early and Middle Neolithic periods (mid of 7th - mid 6th mil. B.C.) - as documented by the excavational data from the settlements Anargiri XI and Anargiri XIII-XII - although some basic choices regarding the construction and organization of habitation’s space refer to dry land occupation - the proximity of those settlements to the adjacent marshes necessitate the adoption of building techniques similar to pile dwellings. At late 6th mil. B.C. the occupation of the lakes and marshes’ shores is intensified, resulting the establishment of several lakeside settlements. The most recent partial or total excavation of some of these and the investigation of extended destruction layers, numerous structural elements and artifacts of various organic materials, yielded new data to the prehistorical research of the region. The preliminary study of the evidence from the lowest waterlogged layers of Limniochori II, Anargiri IXa and b refer to dwellings built on water or by the shores, with a wide range of construction techniques exploited for flooding, walling, roofing etc. Especially the on-going large scale rescue excavation at Anargiri IXb has so far yielded some impressive wooden structures referring to an organized communication and/or defense system of palisades and trackways connecting the settlement to the opposite lakeshore. All these significant evidence referring to the diachronic intra-settlement spatial organization, the form, structure and internal arrangement of the houses, together with thousands of clay, stone, wooden tools related to the productive, building and domestic activities, as well as some unique artifacts and ornaments related to the variety of ideological means of expression and orientations of the local prehistoric communities, formulate a unique data set for the research of pile dwellings in Southeastern Europe and beyond.
Wet, Wet, Wet: Neolithic wetland and lakeside settlements

Author: Dr. Naumov, Goce, Museum of Macedonia, Skopje, Macedonia (Presenting author)
Keywords: Balkans; pile dwellings; pottery and human representations
Presentation Preference: Oral

The Balkans is known as the first outcrop of Neolithic societies that introduced the agriculture on the European continent. There is an abundance of publications and discussions on the ‘dryland’ settlements and their communities in this region, but there is not much on sites established within marshes and on lakeshores. Few of them were excavated, but their significant role in the modification of environment and incorporation of farming were neglected. Besides their specific features pile dwellings were rarely studied through the potentials of wetland archaeology and although this discipline is one of the most advantageous directions in understanding of the past landscapes it is still modestly introduced in the Balkans. There are numerous 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 chronostratigraphy of these sites and indicated the density of establishments on lake shores, river beds and cliffs within marshes. Pile dwellings were characteristic not only for the Western Balkans, but also for the sites on the shores of Lake Ohrid, Lake Prespa and Lake Doiran, but recent research in the Pelagonia valley indicate such constructions on the periphery of tell-sites in wetlands. The context of 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 networks of farming societies that inhabited wetlands and lakes.

**TH6-11 Abstract 12**

Live and survive in prehistory on northern shore of Ohrid lake

Author: Todoroska, Valentina, NJU Museum Nikola Nezlobinski Struga, Macedonia (Presenting author)
Keywords: pile dwellings; tools
Presentation Preference: Oral

Aim of this presentation is to represent the pile dwelling settlements situated in northern part of Ohrid Lake. Movable archaeological finds in few of them, located in part of the lake, indicates on fact that we can talk about pile dwelling settlements which existed in early prehistory: late Neolithic, Eneolithic also late Bronze and Iron Age. A huge concentration of pottery and tools will help us to complete the picture of this region in prehistory. Especially, focus will be given on tools used by people who lived in these regions and help them to survive and live traces of their existence.

**TH6-11 Abstract 13**

Neolithic environment and subsistence in the Western Allgäu – first results of the BELAVI project

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Keywords: human impact, Neolithic land use, subsistence
Presentation Preference: Oral

A research project focusing on Lake Degerssee in Southern Germany revealed settlement activity and land use in the hinterland of Lake Constance older than the onset of the pile-dwelling period at Lake Constance in the 40th century BC. The outcomes of recent archaeological and palynological investigations suggest new water-related and human impact dating back to the 5th millennium (see contribution of Mainberger, this session). Within the tri-national project ‘Beyond Lake Villages – BELAVI’ palaeoenvironmental onsite and off-site data from the Western Allgäu region are synthesized with archaeological records. The chronological basis and with it the relation to regional and over-regional vegetation and climatic records is established by high-resolution pollen, charcoal and dendrochronology and AMS radiocarbon dating.

With regard to the results of plant macrofossil and pollen analyses on the cultural layers at Degerssee, 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 Degerssee comes from ash trees, and tree ring patterns show a cyclic settlement activity with repeated usage of small woodland plots with intermittent fallows. Wood charcoals from cultural layers complement the spectrum of potentially selected construction timber, to gain a more complete picture of wood resource usage. Geoarchaeological investigations look into land use impacts, namely erosion, and together with the taxonomic analysis and dating of embedded charcoals can give further chronological as well as information on prehistoric vegetation cover.

**TH6-11 Abstract 14**

The Neolithic Landscape of Westallgäu Region – first results of BELAVI in Southern Germany

Author: Dr. Mainberger, Martin, Landesamt f. Denkmalpflege Baden-Württemberg, Staufen, Germany (Presenting author)
Keywords: Cultural landscape vs Aquatic landscape, lake shore settlements, Neolithic
Presentation Preference: Oral

Precisely dated, laminated lake sediments contain an amazing wealth of archaeological background data. If their palaeoenvironmental, palaeoeconomic and palaeoecological information can be exactly paralleled to waterlogged archaeological evidence from lake shores, a dataset on human activities in landscapes far beyond the lake shores is generated. This is the core outcome of a research project completed in 2010, focusing on the small Degerssee Lake in South Western Germany. The Degerssee project triggered not only a whole series of new discoveries, but also the design of the tri-national project ‘Beyond Lake Villages – BELAVI’ - Project (BELAVI), which started in 2015. The German working – group focuses on the Stone Age of Western Allgäu, a pre-alpine region between Lake Constance and the European Watershed between Rhine and Danube River systems. Topographic and hydrographic maps illustrate that in the Holocene the landscape was characterized by woodlands growing up on drumlin rows and moraine belts, and by an entanglement of lakes, bogs, lowlands and water courses. The archaeological assessment of the Western Allgäu region is based on a concept of complementary components, with the cultural landscape dominated by farming activities on one hand, and the aquatic landscape with their benefits in respect to foraging, settlement-building, and communication on the other. The presentation will provide with initial results of the GIS – supported landscape analysis and first outcomes of 2015 and 2016 field campaigns.

**TH6-11 Abstract 15**

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 to practice and at a theoretical level. This has begun to change with several new research initiatives focussed on the Salkammergut region in Upper Austria. This paper presents data analysis from the international project ‘Beyond Lake Villages’ (funded by FWF-DFG-SNF 2015-2018). The Austrian part of the project focuses on the Lake Altesee-Mondsee region, including both large and small bodies of water; bogs, and newly discovered ‘hinterland’ sites. The aim is to characterize the impact of landscape change and land use dynamics during the Neolithic with special focus on the 4th millennium BC. The project goals are (i) to establish a highly resolved Holocene archaeological without borders
paleoenvironmental record for the research area. (ii) to enhance our understanding of landscape in terms of spatial networks (iii) to integrate paleoenvironmental data sets with archaeological data. The research is conceived at three scales: (1) Micro-regional, to produce an accurate picture of the complete range of surviving archaeological features through intensive field survey; (2) Regional, incorporating LiDAR data and aerial photography to facilitate a systematic understanding of the archaeological landscape; and (3) Macro-regional, providing new socio-cultural, economic and ideological models/hypotheses that can be tested in subsequent transdisciplinary research.

TH6-11 Abstract 16
Beyond lake villages. Archaeological and palaeoecological research at Lake Burgäschi Switzerland

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Keywords: 4th millennium settlements, palaeoecology, pile-welling archaeology Switzerland

Presentation Preference - Oral

In 2015 started the international research project “Beyond lake villages: Studying Neolithic environmental changes and human impact at small lakes in Switzerland, Germany and Austria.” (University of Bern in collaboration with Landsseerleimaleit Baden-Württemberg and University of Vienna, funding: SNF-DFG-FWF). Three archaeological and three palaeoecological teams work together on three small lakes on the Northern side of the Alps. The aim is to compare environmental changes and human impact of Neolithic societies. The Swiss study area is Lake Burgäschi, a small water body in the central part of the Swiss Mittlorten. Archaeological research started already in 1877 and several major excavation campaigns took place in the 1940ies and 1950ies. Up to now four settlement of the 4th millennium BC areas are known and single finds indicate settlement activities during the 5th and 3rd millennia BC. The presentation gives an overview on former and recent activities in one of the classic find spots of Swiss pile-dwellings research. A special focus will be put on new archaeological and palaeoecological results.

TH6-11 Abstract 17
Above the lakes – Organic finds from Bronze Age mines in the Alps

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Keywords: Mines, Organic material

Presentation Preference - Oral

Organic finds fascinate as they convey exceptional insights into prehistoric daily life and work routine. Organic objects make up the bulk (far more than 90%) of material culture in the period from the Stone Age to very recent times (19th cent.).

Aside from underwater and wetland sites organic materials such as wood, fur, skin, leather and textiles have also been preserved in considerable numbers in several alpine mines (e.g. Hallstatt, Mitterberg). Those ancient mine relics are fundamentally different from the objects we know from wetland and underwater sites in terms of taphonomy, functionality and above all research history. Those hot handles, lightning tampers, buckets, mining timber, crevices 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 bog, wetlands and water bodies as certain materials that decay underwater are preserved in the mines. Furthermore the Hallstatt salt mines offer a unique perspective on the understanding of the finds from the alpine salt and copper mines. In the presentation important early Iron Age find inventories. This is of major importance on two levels (a) the evolution of organic material culture and (b) the alpine finds present important complementary information in the analysis of organic finds from bogs, wetlands and underwater sites is essential in the understanding of the finds from the alpine salt and copper mines. In the presentation important early Iron Age find inventories. This is of major importance on two levels (a) the evolution of organic material culture and (b) the alpine finds present important complementary information in the analysis of organic finds from bogs, wetlands and underwater sites is essential in the understanding of the finds from the alpine salt and copper mines.

TH6-11 Abstract 18
News from prehistoric lakeside settlements in Austria

Author - MA Pohl, Henrik, Kuratorium Pläthauten, Attersee, Austria (Presenting author)

Keywords: Austria, Neolithic, pile-dwellings

Presentation Preference - Oral

The most recent extensive survey undertaken in Austria and a small but successful study of the prehistoric lakeside settlements took place in the 1970s and 1980s. The inscription on the UNESCO list of World Heritage sites in 2011 provided the crucial impetus to resume the archaeological investigations and the associated protection measures. The Pile Dwellings Curatorship was tasked by the Austrian state authorities with coordinating the work and establishing systems of monitoring the sites. In 2013 a monitoring plan was developed with the aim of maintaining long-term observation and putting in place protection programmes; at the same time, archaeological investigations were mounted at the five Austrian world heritage sites on the list of ‘prehistoric pile dwellings’. Now, three years later, a first up-to-date inventory is available, which will allow us to implement concrete protection measures beginning in 2016. Additionally we have got some new data as a result of our research. A new research programme has been started with an underwater excavation in Lake Attersee in 2015.

TH6-11 Abstract 19
Wet worlds in context–The Bronze Age pile dwelling of Must Farm in the East Anglian Fens (UK)

Author - Huisman, Floor, Durham University, Durham, United Kingdom (Presenting author)

Keywords: Contextualising wetland living, East Anglian Fens, Must Farm pile-dwelling

Presentation Preference - Oral

The recent discovery of the Bronze Age site of Must Farm in the former wetlands of the East Anglian Fens opens up a new chapter in pile-dwelling research in the UK. Older than the artificial Iron Age islands known as ‘crannogs’ found in Scotland and Ireland, Must Farm consisted of typical Bronze Age roundhouses built on stilts above a former channel of the river Nene. Burnt down at the end of its lifespan this site has been extraordinarily well-preserved. Consequently, Must Farm (dubbed the ‘Pompeii of Britain’), provides an unprecedented snapshot of later Bronze Age life and human-landscape interaction in the Fens. Moreover, the discovery of this wetland settlement in the ‘deep fens’ beyond the fen edge requires a reconsideration of the later prehistoric Fenland narrative. Although the extraordinary findings from Must Farm are important in their own right, it is crucial that this site is placed within its wider spatial and temporal context. This is also true for other pile-dwellings in Europe. To some extent, all pile-dwellings are ‘unique’ (mostly due to their wet location and the level of preservation at many of these sites), but they should not be studied in isolation. Indeed, to better understanding pile-dwellings, they must be compared with other types of wetland settlements. More importantly, nearby dryland settlements areas should also be considered. Only then 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 - Tibon, Francesco, Università A-Marseille 1, Arzignano, Italy (Presenting author)

Keywords: Boats, Lakes, Monoxyle

Presentation Preference - Oral

The aim of this paper is to propose a new framework to deal with the topic of ancient monoxyles and canoes that have been found in great number in different prehistoric sites of the Alpine region, and particularly to deal with those pertaining to pile dwelling sites.

Usually considered simple boats, essentially in use for fishing and for short travels on water, these objects have not been studied in the same way around the Alps. Their knowledge is in fact not homogeneous and is essentially linked to single experiences and researches, held by singular scholars, often isolated.

Far from wanting to exhaust the topic, the main aim of the proposed framework is in fact to 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 ethnological interpretation of the “modern primitive monoxyles” in use in some technologically regressed regions of Africa, Asia or Oceania.

After doing this, in the second part, the author considers the relationship between man and water in lacustrine environment
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 Prehistory (Evershed et al. 2008). Nevertheless these methodologies are rarely combined due to the high fragmentation of pottery and to the impossibility to link ceramic content with specific site. At the site of Clairvaux XVII (Middle Neolithic - MBA - 39e-37e century BC), the large and diversified corpus of ceramic vessels (377 vessels with restituted profiles) combined to anoxic conditions favoring lipid preservation offers a unique opportunity to investigate the use of pottery to better understand lake dwelling Neolithic society (Pâketruè et al. 2015).

The corpus was first classified based on morphological and morphometric criteria. Chemical analysis of the lipids present in the organic coating on the pottery and the characterized surface residues were then carried out using an analytical strategy combining chromatographic (HTGC, GC-MS, NMR, GC-MS-M/MS) and isotopic (IRMS) techniques. The data obtained on 95 pottery conducted to: (i) the identification of a broad diversity of commodities processed in the vessels, mainly from animal origin; (ii) the establishment of clear relationships between content, traces of cooking, shape and volumes of the vessels.

This study highlights some characteristic consumption pattern of the Neolithic people living at Clairvaux XV in the first half of 4th millennium BC. First, a clear difference is observed between cooking pots and serving vessels. Dairy substances were significantly used in all category of ceramics but small individual vessels seem to be especially dedicated to the consumption or preparation of dairy substances.

From the results of our work, we suggest that (i) depending on the commodity, it existed a large variety of transformation and consumption usages on this site, and (ii) dairy products possessed a particular status. These complex culinary customs carried out in such an environment under such environmental conditions follow the same spatial growth laws as modern cities? And, such micro-economic and socio-cultural network analysis be a tool for interpreting cultural remains or functions of pile dwellings?
TH6-11 Abstract 24
Settlement dynamics and mobility in Late Neolithic Southwest Germany

Author - Kaiser, Mirjam, University Freiburg, Freiburg, Germany (Presenting author)

Keywords: Late Neolithic, pile dwellings, settlement system

Presentation Preference - Oral

The first step 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 useful 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, substance strategy, management of resources and the distribution of material culture characteristics in Upper Swabia will be made. In a second step the comparison will be enhanced down to Lake Constance in the South and up to the Neckar area in the North.

Such a model gives an important opportunity to address specific questions in order to get a closer understanding of the way of life of past people. How are the humans adapted to their surroundings? How do they move? What is the impact of settlement dynamics and the associated degree of mobility on the culture of the people and their interaction with each other? How can we assess migration? Do we have to re-evaluate the Schussenried Culture?

The presentation will give an insight in the current state of this PhD project and discuss the preliminary results.

TH6-11 Abstract 25
Bronze Age pile dwellings in Northern Italy: chronology, environment and architectural features

Author - Dr. Baioni, Marco, Museo Archeologico della Valle Sabbia, Gavardo, Italy

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Keywords: Cultural interactions, northern Italy, pile dwellings

Presentation Preference - Oral

In northern Italy the widest spread of pile-dwellings took place between the 22nd and the 15th century B.C., during Early and Middle Bronze Age and endured till the first phase of Late Bronze Age (13th century), with a considerable difference with situation of Late Neolithic, pile dwellings, settlement system.

Recent excavations allow us to follow the technological and cultural evolution of the communities living in the area and to identify the development of the architectural techniques. The findings show long distance interactions and cultural relationships with Western, Central and Eastern Europe.

Using the connection between Varese lake and Swiss plateau and between Varese lake and Swiss plateau and between Varese lake and Swiss plateau and between Varese lake and Swiss plateau and between Varese lake and Swiss plateau and between Varese lake and Swiss plateau and between Varese lake and Swiss plateau and between Varese lake and Swiss plateau.

Other particular layers and other organic remains were uncovered at the site Serteya 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 Serteya I site, also in the buried lake shore zone.

Keywords: Bronze Age, pile dwellings, settlement system, environment, cultural interactions

Presentation Preference - Poster

Geophysical prospection of submerged Neolithic settlements in Lake Sennitca (Pskov Obl., NW Russia)

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Keywords: geophysics, Neolithic, Sennitca

Presentation Preference - Poster

First archaeological sites on the bottom of Lake Sennitca (Pskov Obl., NW Russia) were uncovered in the 1970s. 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 eastern most megalithic construction of the 3rd mill BC known so far in Europe. Lots of unique
artifacts were found here, among which a wooden Neolithic ski, wooden zoomorphic figures, bone flutes etc. However, during last 20 years the cultural layer on the bottom of the lake was either destroyed due to lake-level drawdown or buried under modern lake sediments. Another particular feature of this lake is its zero visibility caused by shallow bathymetry and high nutrient loads which makes any common archaeological prospection even more difficult.

In order to find further traces of archaeological constructions and cultural layers a range of remote sensing and geophysical methods, both underwater and on the peat bog shore were applied. For magnetic prospections on the peat-bog shore of the lake we applied the highly sensitive total field caesium-magnetometer (±0.01 nT) in a variometer configuration. Combined with a high spatial resolution (sampling rate of 12.5 x 25 cm) the results allow us also to detect the weak magnetic signals of 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 paleokrefet, precise distribution of ancient stone and wooden constructions on the sites and to define and to locate the places for further excavations but moreover provides us a comprehensive approach to the site.

TH6-12 Abstract 01
Ritual continuity and changing monuments in the southern Sperrin Mountains, Northern Ireland
Author - Dr. Brogan, Catriona, Queen's University Belfast, Belfast, United Kingdom (Presenting author)
Keywords: Neolithic/ Bronze Age transition, Northern Ireland, Ritual landscapes
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. The southern Sperrin Mountains form the largest mountain range in Northern Ireland, stretching across the north-west of the country. Glacial activity during the last ice-age has created a landscape of rolling mountains cut by deep glens. Today the upper slopes of the mountains are largely unhabitied as the spread of blanket peat has pushed settlement down into the foothills, with the often barren and windswept uplands reserved for the seasonal grazing of cattle. It would, however, appear that these mountains were not always so desolate.

During the 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 tied the community to the land they had invested in. Landscape analysis of the Sperrin region reveals particularly high concentrations of Neolithic burial activity, suggesting that this may have been perceived as a ritual landscape.

The advent of the Bronze Age sees profound cultural changes throughout Ireland and evidence from a recent genetic study has even indicated that there was a significant migration of people into Ireland (Cassidy et al. 2006). Within the funerary/ritual spheres, megalithic burials are gradually abandoned as burial within cist and pits becomes more prevalent and new ritual
The way to the shore: why going to the beach may not be as straightforward as you might think

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.

Seven modern harbours dominate the 150 km coastline of the Isle of Man, but these represent only a small proportion of the landing places historically used by, and available to, a once largely rural population. Intrigued by the way in which we take access to the beach for granted today, my research focuses on identifying natural landing places – without quaysides, jetties or breakwaters – and the routes which connected them to the agricultural hinterland.

Some landing places were naturally usable, but others show evidence for the adaptation of the intertidal shore and other simple alterations designed to improve safety or use of use. It is sometimes possible to glean from this the reasons the landing places were exploited: fishing and the collection of seaweed as marane 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 not 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 evidence reveals notable patterns and curious anomalies. Proximity to Roman roads, for example, is a shared trait across the case studies, but why does treatment of other Romano-British structural 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 is seen to have a significant impact on contemporary landscape use.

Thus, archaeological discoveries and palynological data show an Early Middle Ages settlement, mostly ignored by scarce historical sources. Since the 10th century, land-use is differently increasing in the plateaux and in the high valleys; those changes might be linked with the distribution of parishes, monasteries and feudal structures. Differences increase between the 15th and 17th centuries, as some territories begin to specialize in brooding or craft industries. In the same time, Jura had to sustain violent crises linked with plague and military troubles. Drawing upon a large collection of medieval and modern archives, still underused. A systematic crossing between these different approaches has been done thanks to a database linked to a Geographical Information System. It may be possible then to describe and understand more precisely the evolution of land-use, beyond the usual prejudices about marginality and late land clearing in mountain territories. Thus, archaeological discoveries and palynological data show an Early Middle Ages settlement, mostly ignored by scarce written sources. Since the 10th century, land-use is differently increasing in the plateaux and in the high valleys; those changes might be linked with the distribution of parishes, monasteries and feudal structures. Differences increase between the 15th and 17th centuries, as some territories begin to specialize in brooding or craft industries. In the same time, Jura had to sustain violent crises linked with plague and military troubles. A systematic crossing between these different approaches has been done thanks to a database linked to a Geographical Information System. It may be possible then to describe and understand more precisely the evolution of land-use, beyond the usual prejudices about marginality and late land clearing in mountain territories. Thus, archaeological discoveries and palynological data show an Early Middle Ages settlement, mostly ignored by scarce written sources. Since the 10th century, land-use is differently increasing in the plateaux and in the high valleys; those changes might be linked with the distribution of parishes, monasteries and feudal structures. Differences increase between the 15th and 17th centuries, as some territories begin to specialize in brooding or craft industries. In the same time, Jura had to sustain violent crises linked with plague and military troubles. A systematic crossing between these different approaches has been done thanks to a database linked to a Geographical Information System. It may be possible then to describe and understand more precisely the evolution of land-use, beyond the usual prejudices about marginality and late land clearing in mountain territories. Thus, archaeological discoveries and palynological data show an Early Middle Ages settlement, mostly ignored by scarce written sources. Since the 10th century, land-use is differently increasing in the plateaux and in the high valleys; those changes might be linked with the distribution of parishes, monasteries and feudal structures. Differences increase between the 15th and 17th centuries, as some territories begin to specialize in brooding or craft industries. In the same time, Jura had to sustain violent crises linked with plague and military troubles. A systematic crossing between these different approaches has been done thanks to a database linked to a Geographical Information System. It may be possible then to describe and understand more precisely the evolution of land-use, beyond the usual prejudices about marginality and late land clearing in mountain territories.
Can humans change their spots? Site location patterns in Mid-to-Upper Paleolithic Cantabrian Spain

Author: Javier, Ordoño, University of the Basque Country, Vitoria-Gasteiz, Spain (Presenting author)

Keywords: Late Middle/Early Upper Paleolithic, Settlement patterns, GIS, Spanish Cantabrian region

Presentation Preference - Oral

Research on the European Middle-to-Upper Paleolithic transition has mainly been devoted to issues of long-standing interest like human anatomy, artifact technology, economic strategies, symbolism or, more recently, genetics. By contrast, other aspects of the archaeological record still require further attention, particularly research on landscape perception and use. As a result, very little is actually known on the decisions and conditions that led Late Middle Paleolithic and Early Upper Paleolithic human groups to settle and move back and forth across the geography in this paper, a pilot approach to investigate this issue, we aim to explore how settlement patterns changed or persisted in a quite constrained and archaeologically rich area, the Cantabrian region (northern Spain). To this end, locational analysis has been undertaken on a total sample of 94 sites showing human use in a time-lapse spanning more than twenty millennia (ca. 45 to 22 ky cal BP) - coincident with the so-called Late Mousterian, Châtelperronian or late Aquitanian 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 diversities 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, Viozenza, Italy (Presenting author)

Keywords: Landscape Archaeology, Roman Archaeology, Roman Venetia

Presentation Preference - Oral

The Upper Adriatic littoral zone stretching between the ancient centers of Altinum and Atria (Adria) is a low plain continually redrawn, until the modern age, by an extremely complex hydrographic system, of which rivers Po, Brenta, Adige and Bacchiglione are the main agents; but that also includes a numerous series of canals, drains and ditches that until the excess waters to avoid swelling. To all this great mass of water, which has always been a highly destabilizing factor for the plain itself, we must also add the other high morphological variability component of the landscape, i.e. the southern basin of the Venice Lagoon, where the hydrographic system goes (and went) to run out, and that, since ancient times, has offered those harbor areas that were crucial for the economic development of the territory.

If today the relationship between landscape and water looks very tight, we knew that was the condition also during Roman times, when classical sources tell us that here was the northernmost part of the great delta of the river Po (that reached Ravenna, to the South, and Altinum, to the North) and, above all, the zone located to the East of the municipality of Atria where the river itself flowed to the sea with more branches, a wide marshland called Septem Maria (i.e. “the seven seas”). Furthermore, we know that in this stretch of plain the river Athesis (Adige), Mediacus (Brenta), Retano (Bacchiglione) and Togisconus (Bovolenta channel) flowed and mingled their waters with Po ones; topparis and fossae (i.e. “canals”) Orcilia and Philotina, two artificial waterways that formed part of an inland waters shipping route that linked Ravenna and Altinum: the existence of such a route is proved by numerous sources, among them the Itinerarium Antonini.

This fluvial route was also followed by a terrestrial one remembered by Tabula Peutingeriana, which also mentions the main stations which marked its track: this road was a coastal itinerary parallel to the innermost one followed by the Via Popilia, a consular road built in 132 BC as a direct connection between Ariminum (Rimini) and Aquileia linking all the important port centers of the Upper Adriatic coast such as Ravenna, Atria and Altinum.

Therefore, Paying attention to all these elements, the paper aims to investigate the complex relationship man-landscape, which was established in the area during the Roman period (ranging from the 3rd century BC and 6th century AD) taking the landscape archaeological approach and through an integrated reading of all the available archaeological, historical and paleoenvironmental data, the final goal we want to reach is double: on the one hand, to identify the environmental factors that both favoured and conditioned the Roman occupation of the territory; on the other hand, to come to a better understanding of the forms this occupation took, and of its actual effects on the natural environment.

Where did all the power go? The rise and fall of the big harbour town of Aquileia

Author: Michelin, Lucia, University of Edinburgh, Edinburgh, United Kingdom (Presenting author)

Keywords: Aquileia, dispersity, 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 Thracianarch period: as a matter of fact with the Dacianic and Costantinian reformation she received officially the title of capital of the Venetia at Matria 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 complementarity in respect of the capital. Her real role granted her a primary importance spot within the imperial agenda, firstly in relation with the Danube 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 city wall (of the half of the VI Century AD) excluded not only the forum but also the harbour that was the symbol of its past role.

How did it happen? Clearly the temptation of giving all the blame to the barbaric invasions and mainly to the supposed conquest of the town by Attila (452 AD) is strong, but with this paper I will go beyond these single events trying to track those long run 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 moment of the unpredictability of fortune. These factors have been both natural (mainly the decrease in the flow rate of the river Natiso) and anthropic (mainly the changes in the power balance of the Roman Empire) i.e. the transfer of the capital to Ravenna in 402 AD.

“The rivers promised not to deluge the country”: the Arno and Serchio lower valleys

Author: Prof. Pasquuccini, Marina, University of Pisa, Pisa, Italy (Presenting author)

Keywords: coastal progradation, North Etruria, Water management

Presentation Preference - Oral

In North Western Tuscany (ancient Etruria) landscape dynamic transformations, due both to natural and anthropic factors, and phenomena of persistence, resilience and dynamic outputs are studied in a long-term perspective. In this district multidisciplinary researches provide evidence of coastal progradation and erosion, palaeo-environmental changes, water management practices, rural and urban landscapes, manufacturing activities. Significantly, the complex hydrogeological evolution of the Pisa-Lucca territory and the long-term human actions aimed at optimizing the rivers regime were already perceived by the ancients, as documented by Strabo after his sources (5.2.5, 2202). In the Roman Late Republican period the critical phases are to be connected with protracted intense rainfalls and with the impact of anthropic activities on the territory (e.g. the Roman colonization in the 2nd and 1st cent. B.C., the upheaval or collapse of the countryside drainage systems, etc.). In a period characterized by sea level rising and by the absence of drastic climatic changes, the coastal evolution was most probably linked to anthropic causes.

Among these, the main elements were the construction of new towns and settlements, deforestation and increased agricultural and manufacturing activities connected with the destruction of coloniae in the early 2nd cent. B.C. and in the late 1st cent. B.C., in particular with the organization of their territories (puntaro and land allotments). The continuous natural transformation of the
litoral and the hydrologic evolution affected the North Western Etruria sea- and river ports and landing places scattered along the coastline in Antiquity and in the Middle ages. The Roman road network was constructed on stable soils in the coastal strip and in the main river valleys in the frame of a strategic plan. A post-medieval interesting case study is the coastal plain NW of Pisa. Here since the 15th Century several plans aimed to reclaiming a large swampland South of the Massaciuccoli lake were made but not achieved. In 1653 an attempt was made by the Dutch Van der Breecht, who built a few windmills in order to raise the water level. This coastal propagation 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 pursued by the Lorena. That caused the erosion of the Arno delta since the end of the 19th century. The present courses of the Arno and Serchio rivers result from complex natural transformations and anthropic actions taken over the centuries, ranging from the straightening of river segments and the draining of stagnant waters to the construction of embankments, dikes, cause di colmate and the building of canals to deviate flood waters.

TH6-12 Abstract 10

Proper in Valley, Hide in Mountains:
Dynamics of Settlement in Ljubuški (Bosnia and Herzegovina)

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Keywords: Late Antiquity, Roman, settlement patterns
Presentation Preference - Oral

The paper analyses the changes in settlement brought about by the Roman occupation of the Trebižat valley and its surrounding highlands and mountain ranges, a geographically well-defined micro region which today constitutes the modern community of Ljubuški in West Herzegovina. The lay of the land, just a mountain range from the sea coast and with good connections through river valleys and passes with the highlands inland, is such that throughout its history it was the border and contact zone of different cultural, economic and political entities and systems. In antiquity this area was the close hinterland of Narona, a major city of the region. Not only was it important for the subsistence of the city’s population due to the rich agricultural land and the pastoral pastures in the highlands, but it also played an important strategic role. The most important road in the province, connecting Narona with Solona, the capital of the province, crossed through the valley as it offered the most convenient route. A Roman garrison ensured the safety of this road, the defence of Narona against indigenous tribes resisting the Roman occupation, but this conflict between the quickly Romanizing farmers in the valley and the more traditional shepherding populations of the highlands.

A non-invasive archaeological landscape project conducted in the area proved that a most close correlation exists in the area between the level of development of the economy, the level of perceived safety and the locations of settlements. The advent of Roman rule, which brought about pacification of the province and economic prosperity, resulted in a gradual shift from the traditional well-defended 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 safest place, but also the largest market in the area. On the other hand, in Late Antiquity the military presence was much weaker, and the safety of the regional system was threatened from the outside. In reaction the settlement seems to disperse and move to the naturally defensible places. A parallel to these cyclical developments can be observed also in the medieval and early modern periods. It appears that the choices of places for settlement and of the main economic activities of the population of the region were dependent on the perceptions of safety, which in this difficult, mountainous landscape could be achieved in one of two ways: by resorting to inhabitation of naturally defensive places or by the participation of peacekeeping forces, demanding both an economical and political outside involvement, but giving the possibility for much more intensive local economic development.

TH6-12 Abstract 11

Comparing cultural transmission patterns in southern Poland during the Bronze and Early Iron Age

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Keywords: Bronze and Early Iron Age, cultural diversity, cultural transmission
Presentation Preference - Oral

In our paper we want to show the methodology and preliminary results of the ongoing project addressing the question when, and in what circumstances, the culture of past societies was determined by such factors as 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 Lowland, the upper Vistula valley, the Carpathian Forest 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 areas), space (communication factors in inter-population transmission), environment, with its natural and anthropogenic transformations in time, stylistic diversity in manufacturing traditions, organisation of settlement area (at the site and micro-region levels), access to resources, and social hierarchies and relationships. The data are examined using statistical tools, e.g. multidimensional techniques of data exploration, and – in case of stylistic studies – compared with the phylogenetic model. The next 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 12

Pastoral Nomads’ Use of the Semi-Arid Syrian Landscape c. 1810-1760 BCE: A GIS Projection

Author: PhD Josephson Hesse, Kristina, Uppsala University, Uppsala, Sweden (Presenting author)
Co-author(s): GIS, MB Syria-Mesopotamia, Pastoral Nomads

Presentation Preference - Oral

Hundreds of Akkadian clay tablets, derived from archaeological excavations at the palace of Mari by the Euphrates, clarify the strong integration among mobile tribes and city-states in Syria-Mesopotamia during the Old Babylonian period (c. 1810-1760 BCE). My project aims to illuminate the social and economic dynamics between pastoral nomads and settled people in this period, with the focus on the former, based on the economics of food producing, exchange, trade, market activities like caravans or nomad caravans and commodity. Not only are the connections between these groups of people essential, but also their ways of interacting with the surrounding environments.

The paper deals with the first step of methodological network studies in this project, which is to map known sites into GIS together with trade routes, landscape features, suggested tribal territories, natural resources, and some remains (e.g. systems of cairns, corrals, kites) registered in the Syria-Norwegian Palmyra project that I have been a part of. The structured location of several hundred Bronze Age cairns, distributed on strategic hilltops and desert oases, in the mountain range outside the ancient trading centre of Palmyra in Syria, indicates that in addition to have been burial chambers these cairns were secondary used as landmarks of territories and routes for trade and migration of pastoralists with their flocks. The landscape image will constitute the base for my further studies of networks and descriptive connections or relationships between people and tribes with places, trade routes, migration patterns etc.

TH6-12 Abstract 13

Road caravanserais of the Medieval Middle East: landscape, architecture and patronage

Author: Ass. prof. Tavernari, Cinzia, Abdullah Gul University, Kayseri, Turkey (Presenting author)
Co-author(s): keywords: caravanserais, landscape, patronage, architecture

Presentation Preference - Oral

In the Islamic world, caravanserais have been faithfully serving travellers, traders and pilgrims for many centuries, sometimes functioning as stopovers until the beginning of the 20th century. The impressive geographical and temporal diffusion of this institution, original to the Islamic world, clearly shows that caravanserais fulfilled a key role in society, in relation both to the physical act of travelling and to the notion of travel as the expression of cultural values. For different reasons tied to religion, knowledge and also trade, travel and travellers have always been important issues for the Islamic civilization but it would be misleading to consider road caravanserais only as way stations for travellers. Road caravanserais were a whole institutional structure: the centre of a variety of functions that linked together religious, political and cultural motivations. Yet it is striking to observe that until now road caravanserais have been poorly studied from a comprehensive point of view and are consequently till insufficiently understood. For example, although well known elements of several oriental mosques or one of their characteristic features, the relationship of road caravanserais to the landscape they have been built in has not been studied thoroughly.

TH6-12 Abstract 14

Archaeology without borders

Author: PhD Josephson Hesse, Kristina, Uppsala University, Uppsala, Sweden (Presenting author)
Co-author(s): GIS, MB Syria-Mesopotamia, Pastoral Nomads

Presentation Preference - Oral

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 areas), space (communication factors in inter-population transmission), environment, with its natural and anthropogenic transformations in time, stylistic diversity in manufacturing traditions, organisation of settlement area (at the site and micro-region levels), access to resources, and social hierarchies and relationships. The data are examined using statistical tools, e.g. multidimensional techniques of data exploration, and – in case of stylistic studies – compared with the phylogenetic model. The next 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 historical 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?
How did the construction of such buildings transform the landscape and its perception by its hosts, the inhabitants but also their patrons? I will attempt a broad contextual comprehension of this question by considering if and how caravanerasia engaged in binding together the landscape and creating a distinctive cultural landscape. My approach wishes to inform the understanding of the ways in which different road caravanerasia’s construction programs can shed light on how landscape, patronage and power were exchanged within different Middle East contexts. In this presentation, in fact, I will compare medieval Anatolias and mediterranean Syria and I will investigate how the construction of road caravanerasia changed the landscape in these two regions. Did it change in the same way? What are the similarities and differences?

This good use of the territory, and its associated organization, has crossed the times until the humankind modify natural lands.

The contemporary landscape organization keeps different remains of this situation in the lineaments, in the parcelling system and in the road network. It also shows us that the «colonization» by the Roman Empire keeps a part of the former forms when it is in accordance to the new one.

Since the middle of the twentieth century, most of the testimonies of this very organized frontier have disappeared. Because of its originality, it’s now time to look at its last remains as a huge historical monument which needs to be kept for national memory of Romania.

It’s always the same old story... or not?

The ‘changing’ landscape of Cappadocia (Turkey)

**Author** - Dr. Turchetto, Jacopo, University of Padova, Padova, Italy (Presenting author)

**Keywords**: Cappadocia, Turkey, Local scale vs. macro-regional scale, Road networks and settlements’ patterns

**Presentation Preference** - Oral

During the course of the centuries, and especially from the Greco-Roman period to the Seljuk times, Cappadocia represented one of the most important hubs and crossing-points of the Anatolian peninsula. Within that chronological framework, it acted as a cultural, economic and political bridge between East and West of both the classical and the medieval world. For those reasons, taking into consideration the interactions occurred between man (with different needs in different periods) and the landscape (which remained almost the same through time), Cappadocia offers a great variety of ‘food for thought’.

In this paper, I will focus on three different geographical sectors of Cappadocia, each one characterised by its own specific natural features: a) the semi-fertile belt between Cotolena Archelais/Aksaray and Carea (Karşıyazı) next to the course of the Kızılırmak river, b) the area comprised between Cotolina Archelais/Aksaray and Tyana/Kemëris, with the volcanic groups of the Melendiz Dağları, Hasan Dağ and Göl Dağ, and the fertile plain surrounding them; c) the mountainous area between Tyana/ Kemëris and Mount Erciyes, through the sites urban development reflect this dynamic relationship? Through examining how water has impacted communities’ decisions regarding their settlements across Europe on a broader scale, wider trends during this period can be identified and understood alongside regional variation to enable a more complex understanding of the nature of the relationships between Early Medieval communities and their landscapes.

The impact of water on settlement development in Western Europe

**Author** - Donnelly, Harriet, The University of Sydney, St Leonarda, Australia (Presenting author)

**Keywords**: Early medieval, settlement patterns, water systems

**Presentation Preference** - Oral

The establishment or development of any settlement will require a reliable supply of fresh water. The vital nature of this resource creates a significance in any discussion of the interaction and relationship between humans and their landscape. During periods of transition, the importance of this relationship, and the effect it has on the development of settlements, can be examined. From the 5th century AD, following the decline of the Roman period in Western Europe, and on into the 12th century AD, the manner in which many of the water systems were used shifted, while other uses remained constant. The movement of various groups into new parts of the continent resulted in changes to the expression of the human relationship to water systems in the urban structures across Western Europe. Places such as Londinium/Ludanici experienced a significant transition from their previous urban layouts, while others, including Cordoba, appear to continue to function within the original Roman boundaries. This paper seeks to examine the impact that the relationship between the communities that lived in these settlements, and the water systems that they used, had on the urban development of these sites. Does the change or continuity that is displayed through the sites urban development reflect this dynamic relationship? Through examining how water has impacted communities’ decisions regarding their settlements across Europe on a broader scale, wider trends during this period can be identified and understood alongside regional variation to enable a more complex understanding of the nature of the relationships between Early Medieval communities and their landscapes.

Archaeogeography of a border: the roman Limes system in south Romania (frontier, roads, landscape)

**Author** - Fajon, Philippe, Ministère de la Culture, Rouen, France (Presenting author)

**Keywords**: archaeogeography, longue durée, roman times, south Romania, Olt valley

**Presentation Preference** - Oral

How to consider the meaning of « frontier » in archaeogeography? (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 archaeological 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 AD, the new limit of the Roman Empire is on the northern side of the Danube. In the Wallachian plain, archaeologists consider two different limits named Limes Alutanus and Limes Transalutanus. The first one is on the western bank of the Olt river, the second one is on the eastern plateau in the Boian plain. These two limits may represent a chronological distinction, a functional difference, or both.

Using in the same time many data from different scientific origins (topography, geology, hydrology, morphology, topology, village and road network, archaeological 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.

The contours of the city of Antioch on the Orontes are revealed in the ancient writings and the excavations conducted on the initiative of Princeton University throughout the 1930s. The grave stones that remained from the Antiquity can provide us with precious data concerning the urban outlines in assuring the information we presented so far.

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 valid comparative approach between the extant knowledge and the concentration of their find spots, although it may have helped us in mapping out the city.

With this objective in mind, we attempted to find the exact provenances of (around 250) grave stones, as much as possible, within the frame of our doctoral research, in the inventory records of museums (Antakya Archaeological Museum, Istanbul Archaeological Museum, Musée du Louvre, Princeton University Art Museum, Warwick Art Museum) and of a local private collection (Ovali Köşk Kasaba). Furthermore, we examined reports, diaries, field notebooks, maps, plans, drawings and sketches of the aforementioned excavations in the Visual Resources Collection of the Department of Art and Archaeology of Princeton University. We have thus been able to draw the topographical context to which the grave stones originally belong.

In this paper, we will present main results of our study concerning the grave stones that we led in pursuance of delineating the city limits. We will demonstrate by using visual materials how they concentrated in periphery of Antioch on the Orontes.

The impact of water on settlement development in Western Europe

This good use of the territory, and its associated organization, has crossed the times until the humankind modify natural lands.

The contemporary landscape organization keeps different remains of this situation in the lineaments, in the parcelling system and in the road network. It also shows us that the «colonization» by the Roman Empire keeps a part of the former forms when it is in accordance to the new one.

Since the middle of the twentieth century, most of the testimonies of this very organized frontier have disappeared. Because of its originality, it’s now time to look at its last remains as a huge historical monument which needs to be kept for national memory of Romania.

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 assuring the information we presented so far.

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 valid comparative approach between the extant knowledge and the concentration of their find spots, although it may have helped us in mapping out the city.

With this objective in mind, we attempted to find the exact provenances of (around 250) grave stones, as much as possible, within the frame of our doctoral research, in the inventory records of museums (Antakya Archaeological Museum, Istanbul Archaeological Museum, Musée du Louvre, Princeton University Art Museum, Warwick Art Museum) and of a local private collection (Ovali Köşk Kasaba). Furthermore, we examined reports, diaries, field notebooks, maps, plans, drawings and sketches of the aforementioned excavations in the Visual Resources Collection of the Department of Art and Archaeology of Princeton University. We have thus been able to draw the topographical context to which the grave stones originally belong.

In this paper, we will present main results of our study concerning the grave stones that we led in pursuance of delineating the city limits. We will demonstrate by using visual materials how they concentrated in periphery of Antioch on the Orontes.
TH6-12 Abstract 18
The landscape of iron production – from prehistory to the Early Modern Period in present-day Latvia

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Keywords: Medieval and post medieval landscape
Presentation Preference: Poster

The landscape of iron production – from prehistory to the Early Modern Period in present-day Latvia is an important factor in the process of transformation of the landscape. By using an inter-disciplinary approach of archaeology, history and natural sciences, the changes in landscape-production agency will be analysed.

TH6-12 Abstract 19
Warfare and Urban Transformation in Late Antique Central Balkans

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Keywords: Abandonment, Medieval and post-medieval period, Rural settlement
Presentation Preference: Poster

The abandonment of rural settlement (desertion and shrinkage) is documented over the majority of European countries, especially between the 14th and 17th centuries. In some areas, desertion affected more than half of all settlement units and significantly influenced the character and shape of today’s landscape. Despite considerable attention being paid to medieval settlements within several disciplines (history, historical economy, historical geography, historical demography, natural sciences and archaeology as well) the process of abandonment still remains poorly understood. On the contrary, a large number of reasons for settlement abandonment have been suggested across Europe, both cultural and environmental. In addition to various war events, demographic decline or unfavourable economic development, the human impact on the environment and changes in natural factors (deforestation, soil erosion, drying up of streams or an increase in flooding, climatic deterioration) have been supposed. A general idea of a ‘retreat from the margins’ is spread across European countries.

The paper evaluates the conventional concept of abandonment in marginal areas regarding their natural characteristics and tries to discuss the role of natural conditions in shaping of human communities together with their 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. (1) Some settlements situated in positions originally regarded as marginal were not deserted at all; (2) Some settlements survived in shrinflage 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.

TH6-12 Abstract 20
Medieval and post medieval village of Zasavje

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Keywords: Abandonment, Medieval and post-medieval period, Rural settlement
Presentation Preference: Poster

In the vicinity of city Brežice (southern Slovenia) Institute for the Protection of Cultural Heritage of Slovenia, Centre for Preventive Archaeology is carrying out a large-scale archaeological project as a new Hydroelectric power plant is being built on the Sava River. A number of archaeological sites are under threat of being destroyed by different infrastructural building works and by flooding of huge areas in order to make the accumulation lake. Archaeological research of the area, started in 2008, is still not finished.

On the right bank of the Sava River, east of the village Krška there used to be an area of late medieval and post medieval village of Zasavje, which existed until 1781 when extensive flooding destroyed the old village. After the floods only a few farms were set anew in the vicinity, and until the beginning of 20th century the area was completely abandoned and became agricultural farm land.

The Sava River is a typical Alpine river. Water levels can rise fairly high because of melting snow and seasonal spring rains. It can still cause major flooding in the event of a so-called one-hundred-year flood. Flooding of the area did not stop until the second half of 19th and the first half of 20th century when the Sava River was regulated. Many of the abandoned river channels can still be seen in the landscape. In 2014 the analysis of LiDAR data and geological survey were made as part of preliminary research of the area. Investigations led to the conclusion that the area has been heavily transformed and that not many remains of medieval and post medieval buildings could be preserved in situ. Architectural remains of buildings were literary erased from the face of the earth due to massive water erosion that destroyed predominantly wooden architecture.

In 2009 extensive and intensive archaeological field surveys took place in the area. In 2014 and 2015 also trial trenching of 25,3 ha in the eastern part and smaller archaeological excavations in the western part of potential medieval village area were carried out. Archaeological research in the area revealed that only few farm houses were not completely destroyed during flooding and meandering of the river channels. Many river channels were also identified during excavations. A few of them were regulated and were used for communication by the residents of the village, as the channel’s banks were fortified with limestone slabs.

Archaeological research in the area is still being carried out thus final evaluation and interpretation of the identified archaeological structures will be done only after the fieldworks are finished and then all data will be put together and compared with historical and geological data.

TH6-12 Abstract 21
Phenomenon of Medieval and Post-medieval Rural Settlement Abandonment: Can We Observe Continuity?

Author: Dr. Holota, Lukáš, University of Exeter, Exeter, United Kingdom (Presenting author)
Keywords: Abandonment, Medieval and post-medieval period, Rural settlement
Presentation Preference: Poster

The abandonment of rural settlement (desertion and shrinkage) is documented over the majority of European countries, especially between the 14th and 17th centuries. In some areas, desertion affected more than half of all the settlement units and significantly influenced the character and shape of today’s landscape. Despite considerable attention being paid to medieval settlements within several disciplines (history, historical economy, historical geography, historical demography, natural sciences and archaeology as well) the process of abandonment still remains poorly understood. On the contrary, a large number of reasons for settlement abandonment have been suggested across Europe, both cultural and environmental. In addition to various war events, demographic decline or unfavourable economic development, the human impact on the environment and changes in natural factors (deforestation, soil erosion, drying up of streams or an increase in flooding, climatic deterioration) have been supposed. A general idea of a ‘retreat from the margins’ is spread across European countries.

The paper evaluates the conventional concept of abandonment in marginal areas regarding their natural characteristics and tries to discuss the role of natural conditions in shaping of human communities together with their 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. (1) Some settlements situated in positions originally regarded as marginal were not deserted at all; (2) Some settlements survived in shrinflage 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.

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, Iasi, Romania (Presenting author)
Keywords: Landscape, Middle-Late Bronze Age, patterns
Presentation Preference: Poster

The Middle Bronze Age is represented by Costișa and Monteiu 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.

In fact, we are talking about two totally different behavioral patterns that did not imply the residence in the same place.
Among the factors that affected the dramatic shifts in patterns of living are: deforestation, imposition and acceptance of a macro regional housing model that fits better to the new type of economy, the need for an efficient exploitation of local sources (especially salt).

As a consequence, at the transition from the Middle Bronze Age to the Late Bronze Age in Eastern Romania it occurs a major change in the housing model which was represented by fortified settlements (slogenholds, inter alia visibilities, the control of some satellite settlements, the control of the access roads, the placing in the proximity important water courses). This model encountered in the all the Sub-Carpathian area will be replaced with a kind of a micro regional swarming model much closer for the cattle breeders communities with new preferences (secondary and tiny watercourses, lowlands, Chernozem soil, solanility, 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 maturality, 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, surgery, treatment, disease, disability, identity, health.

**Keywords:** culture, medical, hospital, theory, Europe, medicine, palaeopathology, bioarchaeology, medicine, hospital, theory, Europe, medicine, palaeopathology, bioarchaeology, surgery, treatment, disease, disability, identity, health

**Presentation Preference:** Regular session

**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 interdisciplinary 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 constructions and skeletal remains, offer an insight into the provision of the so called ‘pauperes 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 widows, 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 background of four relevant questions: 1. what kind of caring institutions existed in this area and period of investigation? 2. Who was admitted? 3. Where can one postulate both prophylactic and medical support and how do these institutions differ from others? 4. Which developments and changes can be observed?

The presentation provides some interesting answers to these questions and gives the possibility for an intensive discussion.

**TH6-13 Abstract 02**

**The Bubonic Plague and Monasticism in Iceland**

**Author:** Prof. Kristínnsdóttir, 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 churchy 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 
worries of the supernatural distance, and that animals derived from ‘outer realms’ (e.g. the wilderness or far-off lands) are more medicinally potent.

The World Health Organization (WHO 1993) estimates that about 80% of the world’s population rely on zootherapy— the use of non-human animals, their parts and products— as a method of primary health care. In the past the percentage of people who utilised zootherapy was certainly higher, as evidenced by Roman medical texts and Anglo-Saxon leechdoms, which are replete with advice about animals as human medicine. Only in the late modern age 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 wide held, cross-cultural belief that geographical distance is equalled with supernatural distance, and that animals derived from ‘outer realms’ (e.g. the wilderness or far-off lands) are more medicinally potent.

Surgical treatment at the Danish Cistercian Abbey

Surgical treatment at the Danish Cistercian Abbey is a critical analysis

Author: MA Mollerup, Lene, Museum Stenderborg, Stenderborg, Denmark (Presenting author)

Keywords: Medieval abbey, Skeletal paleopathology, Surgical treatment

Presentation Preference: Oral

Through eight decades the Cistercian Abbey of Æ°m, Denmark, has been well known nationally and internationally for its tracts of surgical treatments on medieval human bones. The human bones derive from the monastic burial grounds in and around the Abbey run. Most of the bone material was excavated in the period 1933-1936 and followed up with a Danish publication in 1936 and a German publication in 1941, both dealing with the skeletal paleopathology. These publications furthermore argued that the monastery functioned as a hospital in the medieval period 1172-1538 AD, a claim which has since, remained practically undebatable

Modern anthropological analysis is questioning the former interpretation of the human skeletal material. New insight gives the basis to re-evaluate 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.

Heavy metal: health, medical tradition and cultural exchange in historic Iceland

Heavy metal: health, medical tradition and cultural exchange in historic Iceland

Author: Walter III, Jóh Wallave, Reykjavik, Iceland (Presenting author)

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Keywords: disease, osteology, alchemy, heavy metals, culture, Iceland, monastery, hospital, medicine, treatment, syphilis, mercury, paleopathology, ICP-MS

Presentation Preference: Oral

Skinfuklaustur, located in the east of Iceland near the Vatnajökull glacier, operated between AD 1493-1554. As an Augustinian monastery, Skinfuklaustur ran a hospital with sophisticated medical practitioners, providing medicinal and surgical treatments. The specialized medical knowledge, range of medicinal plants and herbs, and evidence of imported objects and food found at the site are indicative of Iceland’s international cultural inclusion in the past. Between 2002-2011, 271 out of 265 individuals were excavated from the site, presenting a vast array of medical conditions including syphilis, tuberculosis, hydatidosis and Paget’s disease, for example. In addition to disease, it is also vital to consider environmental influences on human health as a result of living conditions. Furthermore, 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 works and during the gilding of metallic objects. Mercury can also be released into air, water and soil through geothermal activity, as was seen in high concentrations during the eruptions of Mount Helia (1970) and Helmaey (1978) in Iceland.

Inductively coupled plasma mass spectrometry (ICP-MS) was used to measure heavy metal concentrations in 50 samples from individuals excavated at Skinfuklaustur. 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 Skinfuklaustur, thereby providing further insight into concepts of mobility, isolation and care in historic Iceland.

Curing animals and human with wood tar in the Mediterranean from the Middle Ages to Present

Curing animals and human with wood tar in the Mediterranean from the Middle Ages to Present

Author: Buri, Sylvain, CNRS, Simiane Colloque, France (Presenting author)

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Keywords: Ethnomedecine, Pharmacology, wood tar

Presentation Preference: Oral

Wood tar, extracted by dry distillation, has been used in human and veterinary medicine since ancient times. This is particularly the case of tars from conifers (Pinaceae, Cupressaceae, and Taxodiaceae) in the Mediterranean region, where they are still produced and used for 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 systematic way, from the plant raw material to the end product and its use, on both sides of the Mediterranean today and in the past, and by assessing their actual medicinal effects, or even toxicity. Our innovative research is embedded in an inter-disciplinary and cross-sectoral frame, crossing the methodologies and perspectives of the humanities and life, material and environmental sciences (history, archaeology, bio-archaeology: Organic chemistry and Physicalchemistry, plant biology and molecular biology) pharmacology, toxicology and ecology carried by a Mediterranean and complementary consortium of scientists. Both diachronic and synchronic, this research takes place in different space-times: medieval and post-medieval Provence (France) on the one hand, and current Atlas and Anatolian mountains (Morocco/Turkey). Through a cross-approach, research is organized into three work packages. The first package deals with natural resources, knowledge and know-how used to produce wood tar and the micro-environmental impact of this activity. The second package aims at providing a better understanding of wood tar as material, of his biological and chemical composition through the acquisition and analysis of current different plant species’ tars, the development of a referential database, the analysis and chemical characterization of archeological tar residues, and finally comparison of the molecular spectra of tars and essential oils. The goal of the third package is to study the use of these different sorts of tar in human and veterinary medicine in the past and today, to assess their actual medicinal properties and their possible toxicity. By its retroactive 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.
It is well known that many treatments for diseases and injuries existed in the later Medieval period (ca. 1050-1550 CE) in Northern Europe. Written records, surgical instruments and other artefacts for wound treatment, medicinal plants and various materials used to treat illnesses have been widely discussed. However, very little evidence of such treatment is readily observable when we analyse the actual recipients of such procedures. Therefore this presentation aims to provide a critical evaluation of potential evidence for treatment found in human skeletal remains from archaeological contexts from Northern European countries, and in particular England. Palaeopathological analyses have established that a range of diseases and injuries are visible on the human skeleton, although the majority of diseases would have only affected the soft tissues. The most commonly observed skeletal lesions include dental disease and trauma. Dental disease in the form of caries and periapical lesions increased in the later Medieval period, especially with the wider availability of sugar and finely milled flour that would have promoted dental caries. However, according to medical treatises removal of infected teeth was largely avoided and it must be speculated that the high percentage of teeth lost ante-mortem in medieval individuals can be attributed to natural causes. Fumigation was one form of treatment for ‘tooth worms’ thought to cause dental caries and potentially such treatment could initiate the upper respiratory tract and, if chronic, could lead to maxillary sinusitis. Nevertheless, since infections may have a number of different causes and should therefore not be seen as proof for dental treatment.

More solid evidence for treatment is found in form of surgical interventions such as trepanations and amputations. Trepanations, or opening of the cranial vault has been practiced for millennia and evidence for successfully healed (and unhealed) trepanations is known from almost every continent. Trepanations would have been performed to treat head injuries, epilepsy or other neurological problems. Despite a high survival rate of ‘patients’ in earlier times, the number of skeletons found with trepanations decreases in the later Medieval period in Northern Europe, attesting that other, probably less invasive treatments for cranial trauma and neurological disorders 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 observed and they can potentially be mistaken for post-mortem damage.

Lastly, fractures, especially of long bones, when healed with little deformities have been viewed as evidence for fracture treatment. However, it has to be acknowledged that fractures of the lower arm and leg bones, when affecting only one bone might naturally heal without angular deviation, even in the absence of treatment. In conjunction with these examples, further evidence for fracture treatment will be discussed and critically evaluated, but it has to be concluded that without additional contextual evidence human skeletal remains are not an unambiguous source of information if we want to infer medical treatment in the past.

The Renaissance University of Wittenberg, Germany, founded in 1502, is well known for some of its illustrious faculty members, including important historical figures like Martin Luther and Philipp Melanchthon. Both supported and influenced medical teaching at the University during the 16th century, while no fixed boundaries existed between medical and theological thought at that time. At Wittenberg University a sound understanding of the healthy human body was seen as a prerequisite also for understanding and healing the human soul. Especially Melanchthon readily incorporated up-to-date anatomical knowledge into his writings, for example updating his own work “Libri de anima” with details from Vesalius’ “De humani corporis fabrica” around the middle of the 16th century.

Example updating his own work “Liber de anima” with details from Vesalius’ “De humani corporis fabrica” around the middle of the century. Melanchthon readily incorporated up-to-date anatomical knowledge into his writings, for example updating his own work “Libri de anima” with details from Vesalius’ “De humani corporis fabrica” around the middle of the 16th century. The Renaissance University of Wittenberg, Germany, founded in 1502, is well known for some of its illustrious faculty members, including important historical figures like Martin Luther and Philipp Melanchthon. Both supported and influenced medical teaching at the University during the 16th century, while no fixed boundaries existed between medical and theological thought at that time. At Wittenberg University a sound understanding of the healthy human body was seen as a prerequisite also for understanding and healing the human soul. Especially Melanchthon readily incorporated up-to-date anatomical knowledge into his writings, for example updating his own work “Libri de anima” with details from Vesalius’ “De humani corporis fabrica” around the middle of the 16th century. The Renaissance University of Wittenberg, Germany, founded in 1502, is well known for some of its illustrious faculty members, including important historical figures like Martin Luther and Philipp Melanchthon. Both supported and influenced medical teaching at the University during the 16th century, while no fixed boundaries existed between medical and theological thought at that time. At Wittenberg University a sound understanding of the healthy human body was seen as a prerequisite also for understanding and healing the human soul. Especially Melanchthon readily incorporated up-to-date anatomical knowledge into his writings, for example updating his own work “Libri de anima” with details from Vesalius’ “De humani corporis fabrica” around the middle of the 16th century.

The aim of this research is to evaluate evidence for accidental and intentional trauma in skeletal populations from Finland. Trauma was studied in 473 individuals dating from the 11th to the beginning of 19th century in Finland. Ancient Finnish populations showed a crude prevalence rate for trauma of 18.4%. The occurrence of trauma (excluding violence related trauma) in spatially and temporally populations close to the Finnish study populations ranges from 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 Parry

human bodies have been identified at the site, which can be correlated very well with surviving historical information from different sources. The joint analysis of these historical documents in conjunction with the osteo- and funerary archaeological evidence allows significant new insights into the actual practice and teaching of Renaissance anatomy at the University of Wittenberg, the subsequent fate of the anatomised bodies as well as medical treatment of trauma and infectious disease during this time.

"Love thy neighbour...": Social outcasts and the English Middle Ages

The research broadens our understanding of medieval hospitals as isolation-enforcing shelter, the people’s interactions with social outcasts; the study challenges our perception of the approach to leprosy within the society of the Middle Ages in England. Additionally, bioarchaeological research will profit from the generation of fracture patterns that include bones. It will allow studies which fractures are likely due to daily activities of the medieval English population and act as baseline for future research.

Reference:
fractures, were found in eight individuals, of which five were estimated to be males or possible males and three were females or possible females. Three had died as young adults, three as mature adults, and one as an old adult. Colles’ fractures were found in six individuals, two of which were females and one was male; two of these were young adults, two mature adults, and two old adults. One mature female was diagnosed with a Clay shoemaker’s fracture of the 1st and 2nd thoracic vertebra, and one young adult male with a Boxer’s fracture of the fifth metacarpal. Examples of trauma also include two subluxed shoulders and one case of impoista ossificans on the posterior tibia.

Males had more trauma than females and the prevalence was higher in older individuals, which was also found in most of the previous bioarchaeological studies. The ribs, tibia, and skull were more affected in males, while the radius, ulna, and vertebrae were more commonly involved in females. The radius and ulna were more affected in the individuals that died as old adults. Interestingly in our study trauma was found to be positively correlated with moderate or considerable amounts of dental calculus and osteochondritis dissecans, and the implications of these findings will be discussed in more detail.

Most of the observed trauma consisted of well healed lesions with only slight angular deformity and little overlap. Two of the fractures were healed but unaligned, and two were healed perimortem injuries. Barber-surgeons in many of the locations are known from historical sources and in the mid-18th century provincial doctors were employed to treat the injured.

Interesting patterns emerged when compared different sites. While Mindaugas street burial ground considered to consist of a working hypothesis that the majority (or even all) of the graves may indicate a low level of hygiene, poor health conditions and long-lasting work overloading of the individuals as well.

Tormersdorf-Toporów may indicate study group exhibit distinctive features. Variety and occurrence of the pathological lesions may indicate low levels 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 XIX century in former Tormersdorf theosocial care home (Brüder-undPflegehausZOAR) was functioning. This allows toatea working hypothesis that the majority (or even all) of the graves found in Tormersdorf-Toporów are likely to be associated with burials of the residents of this institution.

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%) intraretinal tooth loss was visible. Dental caries was present in 20 cases (62.5%) and in 9 cases (28%) periapical 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 mature 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 low levels of hygiene, poor health conditions and long-lasting work overloading of the individuals as well.

Social welfare and health status of the Upper Lausitz - a Tormersdorf/ Toporów settlement case study

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Keywords: Social and health status, medieval, medical
Presentation Preference - Oral

Archaeology without borders
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 Christian communities. The archaeological remains from the north-west of the Middle Mark is a process quite well established through written Islamic sources: between the 8th and 9th century different Berbers groups settled in this area, whereas before the mandates of Abd al-Rahman III (929) as Caliph, this area was inhabited and was most the core of the Islamic frontier with Christianity in al-Andalus between the 10th and 11th century. How both the explicit recognition of these realities raised disciplinary problems concerning their chronological and religious-ethnic identity.

In one hand, the settlement of Berbers in this area, as well as the Christian community in the area of the 10th century was made possible by the existence of a protected subordinated place in society through the status of dīmi-s or protected people. The traces of these people are almost invisible, mainly rock-cut tombs sites. These sites are not associated with artefactual or osteological remains, thus making it impossible to determine accurate chronological sequences, so they merit to be integrated in a collective debate.

From hand to mouth: dietary perspectives on religious minorities in Medieval Portugal

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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 food, the avoidance of certain foods played a significant part in the construction of identities by social status, age, sex and faith. This is especially intriguing for the multi-faith societies of Medieval Iberia were Christians, Muslims and Jews co-existed during the medieval period. In multi-faith societies co-existence and religious tolerance towards minorities are inextricably linked, affecting all aspects of socio-religious life including dietary requirements. This paper addresses debates on socio-religious changes in an understudied area of Portuguese history, applying carbon (13C) and nitrogen (15N) stable isotope analysis to investigate the diets of Islamic and Christian communities in medieval Portugal under shifting religious political control. Stable isotope analysis, which provides direct evidence of the diet of archaeological individuals, has been applied to the skeletal remains of Muslims and Christians from the medieval sites of Beja (9th-12thC AD) and Silves (9th-13thC AD). These sites are notable for the presence of communities of Muslims and Christians that co-existed before and after the Christian conquest. Beja provides the remarkable opportunity to analyse contemporaneous Muslims and Christians living under Muslim rule and buried in the same burial ground. In addition Silves offers an insight into the influence of the Christian conquest onto the economy and lifestyle of the Christian minorities in southern Portugal as well as the effect of the shifting political control on the pre-existing Muslim groups. The combination of the data from these two settlements can provide information on the economies and the subsistence strategies put in place by religious minorities as well as shedding light on the development of medieval pluralistic societies under shifting powers and during transitional periods.
Archaeology without borders

Archaeology and religious identities: the example of the Évora Inquisition court (Portugal)

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Keywords: Jewish, Minorities, Persecution
Presentation Preference: Oral

The origins of the Inquisition are related to the power that religion had in Medieval times, representing values as engines of collective lives. As a result, the Catholic Church and the Papacy took over, since the 12th century, the leading role in the fight against heresy. The Inquisition had its origin at that time, and its development through the Catholic world led to its official creation in Portugal in 1536, aiming the surveillance of the ’purity of faith’, the suppression of heresy, and the discipline of religious beliefs and behaviors, essentially related with the Jewish presence in the Portuguese territory. In 2000/2008 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 ditch suggests that the bodies were deposited directly in the dump. Moreover, the variability of the orientation and position of the body and limbs, and the absence of grave goods are not in accordance with the procedures of a Catholic burial. These results are underlined by the fact that the individuals were recovered from a location that was not sacred. Also, the manuscripts from the Évora Inquisition allowed the identification of 87 prisoners who died during the period in which the dump had been in use (somewhere between 1658 and 1634), and showed that at least 11 (12.6%) of them were confirmed discarded in the dump, likely because they were charged of ’Judaism, heresy and apostasy’. The archaeological traces, as well as the anthropological and historical contexts, are in accordance with the characterization of these individuals as unburied dead, that were not judge by the court of the Portuguese Inquisition and reconciled with the Catholic faith before they died. More than a penalty to the body, this was a punishment to the soul of the deceased. Nevertheless, we will never be certain if these individuals were really Jews, once it could happen that people made their accusations because they were afraid of being accused first. Also, the defendant never knew what crime he was accused or even who made the accusation. From this perspective, the archaeological findings have to be interpreted carefully, but also show us the climate of fear created in people’s everyday life. Even so, these individuals show a unique context which can be used in the future to help interpret other burials which do not fit within the usual scope of the Catholic burial rules in Medieval and Modern times.

Archaeology of the Spanish Civil War: Is new data contributing to a deeper understanding?

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Keywords: archaeology of conflict; Spanish civil war; trenches
Presentation Preference: Oral

Between 1936 and 1939, Spain was 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 period could yield.

In the fifteen years that have since passed, many things have changed in Spain regarding the Archaeology of the Civil War. Legislation protects the sites, excavations are conducted in a variety places, mass graves have been unearthed and bodies identified, and objects of all kinds have been recovered and restored. But these accomplishments, far from bringing the population closer to understanding this part of history, have re-opened wounds of the Civil War. The archaeology of recent conflicts is a complex topic. The research becomes intertwined with emotions and fears, and personal stories come to life in a setting of loss and destruction. Why are we not using these new data to overcome differences? Why is the Archaeology of the Civil War viewed as partisan, biased, and provocative? Our paper will present the evolution of the research of the Spanish Civil War, beginning with our first excavations in 2000 and exploring other projects. It will also serve as a starting point for debating different approaches to archaeological research of recent conflicts, and will briefly compare the situation in Spain to other similar European and American cases.

Archaeology without borders

The Fact of the Mother Goddess

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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-worship (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-worship in the history of culture, as evidences made of different materials in various museums in Anatolia, were classified. Particularly, the works 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 was 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 integrality 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 humankind, the sociological ideas realized in the life environment by coming to know the nafs, RESULT: We found out that the conquests which had been realized in different periods of the History of Humanity are hidden in the inner depth of human. The definition of the Pharaoh, idol (ego), (con was observed to be the abstract, emotional gap which made the life harder in the human structure. The concepts such as the Mother Goddess idols and Pharaoh are the explanations of this empty space as signs and symbols. This determination is that by scrutinizing the existence which bear critical meanings beyond time, there may be an explanation of the life prescription of the history of humanity. It is seen that this prescription is the Noble Quran which constituted an important bridge between the past, which sheds light to the future which have been examined throughout the ages, with the future.

Archaeology without borders
TH6-15 Abstract 01
Saint-Denis, Archaeology, territory and citizenship
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Keywords: Archaeology, Citizenship, Territory
Presentation Preference - Oral
Saint-Denis, one of the major sites of French history is also a suburban town, an area that suffered the 13 November attacks, near the “Stade de France”, the symbol of the growth of the town of the 21st century. Here, the new constructions and urban development have erased the shape of the ancient town.
More than 40 years of urban archaeology allowed us to gather data to understand the mechanism of urban growth from the beginning to present day. In order to place the research in a long term framework, in 1982, the municipality created the archaeological Unit.
The Saint-Denis' excavations have produced a vast mass of archaeological finds. Archaeology is a concrete discipline, perfectly suited for establish direct contact with general public. The outreach program, “Archaeology, territory and citizenship” is in progress since 1998. The goal of this project is to transform archaeological material into tools of understanding the territory. We are not using monumental remains but finds of daily life, experimental structure and local links, to cross both the know-how of past and present. This project, supported by the European projects, ACE and NEARCH is every time an experience, because the question of the inhabitants and the invisible towns of Saint-Denis is renewed.

TH6-15 Abstract 02
Desisting First Nations to live with Muslims, A Basque reflection on existence and coexistence
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Keywords: Archaeology, “convivencia”, cultural heritage, disciplinary heterogeneity
Presentation Preference - Oral
On 23rd October 2015 last, several unidentified persons threw rubbish in the mosque of Llodio (Araba). Several days later, a hooded person threatened and insulted those who were congregated inside. Nobody was harmed during 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 for whom we empathize and whom we support. Indifference is the prevailing attitude with those groups that are not defined politically. Atapun turns into hate when certain tragic events, intensified by devastating media coverage, at precise times shatter peaceful coexistence.
The Basque Country is also going through other internal processes focused on working for peaceful 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 cultural 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 avoid the opportunty 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 obligations 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 Muslim coexistence is the case of fisheries of the North Atlantic, which invented the interaction between Basques, Europeans and Canada’s First Nations. In the proposed paper, we will reflect on the manner in which the socialisation of this example can generate mechanisms of proximity and tolerance between the Basque and Muslim peoples.

TH6-15Abstract 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 expressed the need for improvements in the theoretical and practical approaches used to develop community-based investigations about and interpretations of cultural heritage.
The declaration is expected to foster increased discussion and collaboration on cultural heritage studies. Created in English, the document has already been translated into Spanish, French, and Portuguese. The group is currently seeking formal approval from each of the professional societies and academic institutions that sent representatives to the inaugural meeting that they will become convening signatories to the declaration. A number have already agreed to “sign on.”
Participants in the working group include anthropologists, cultural anthropologists, and linguists. The development of the “Campinas Declaration” is used as a case study to explore the dynamics of international, heterogeneous disciplinary communities working together successfully to craft a declaration that could be a model for collaboration in heritage studies. The declaration itself was crafted through intensive but brief collaboration that created an intellectual bond among the participants. Whether the working group can become a sustainable network of functioning partners will depend on the willingness of the sponsoring organizations to allow the network to flourish and establish working procedures that allow for its independent operation. If the focus can remain on a joint understanding that threats to cultural heritage, both tangible and intangible, are real and shared universal elements, convivencia is distinctly possible. Anthropologists can contribute much to the success of the relationship because of their experience working with stakeholder communities concerned with both intangible and tangible heritage.
Integrating Archaeology at Vitoria-Gasteiz (Basque Country): terrorismo, immigration and peace

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Keywords: Archaeology of Contemporary Past, Community Archaeology, Integrating Archaeology
Presentation Preference - Oral

In the late 1950's and early 1960's the small Basque town of Vitoria-Gasteiz became an important industrial center that attracted thousands of immigrants from other Spanish regions. Although it was considered by the 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, 1976 is a milestone for the city’s population. The arrival of democracy in 1978 led to the conversion of Vitoria-Gasteiz in the capital of the Basque Autonomous Community. This region has a nationalist majority claiming independence for the Basque Country or at least converting Spain into a federal state.

In recent years the city has experienced a second wave of migration, with newcomers from the countries of Eastern Europe, Latin America, North Africa and sub-Saharan Africa. With 250,000 inhabitants, the Basque capital has become today in a 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”) at urban level they are creating real ghettos. A rejection of initiatives such as the construction of mosques (especially those working-class neighborhoods that had housed the first immigrants of the late twentieth century) has been observed.

At this very reality of globalization, in Vitoria-Gasteiz it is being lived another equally important process. The cessation of armed activity by ETA in 2011 has given way to a period of peace building and collective memory throughout Public policies of memory trying to do justice to the victims of the Franco’s regime (1936-78), of the terrorist group ETA (1956-2011) and State terrorism. Thus, the weight of terror continues to set the social and political agenda of the city in 2016. A purely Spanish terror, for now.

Within this reality, we believe that Archaeology of Contemporary Past is a valid and useful tool to try to consolidate a culture of peace, overcome the traumas of the past and promote a real integration of immigrants. In our communication we show the work of Heritage socialization that we have developed over the past three years: workshops on Archaeology of the Spanish Civil War, guided tours at working-class neighborhoods of Vitoria-Gasteiz, cultural courses about Archaeology of Francoism at community centers... As a case study we will present the example of the district of Coronación, erected by the dictatorship in the early 50 to accommodate Spanish immigrants. Today Coronación welcomes much of the new Maghreb and sub-Saharan immigrants. The European Union is developing here between 2016-2020 a regeneration project of the neighborhood (Smart City). Our Community Archaeology Project aims to recover the material traces of the past, to present the history of the neighborhood and promote the integration of old and new neighbors across the Urban Heritage.

Uncovering convivencia from the dark depth of modernity: toward intercultural rights to heritage

Author - Orlando Barbano, Francesco, Castrì Di Lecce, Italy (Presenting author)
Keywords: decolonial theory, indigenous archaologies, intercultural human rights
Presentation Preference - Oral

In 1492 the last Islamic kingdom in Spain was taken and from the reconquista of Granada began the conquista of the so-called “New World”. Until this year convivencia meant that cultural diversity was managed in a way by which each group with its own material and spiritual references was able to define its own path of development. But after the Spanish conquest the perception of cultural diversity was the justification for the exclusion of “others” and the imposition of a dominant culture which was called “Christian” that it was, and somewhere it still is, a synonymous for “civilized”. In Granada, according to the Italian historian Adriano Prosperi, it was ignited the “seed of intolerance” that would have been the source for the legitimation of European expansion and colonial power throughout the world.

By focusing the attention on the process of modernity as a project for imposing a universal ethic and controlling peoples through their racial classification, Latin American decolonial theorists have shown how euro-western powers have been able to shape a world-system characterized by a logic of exclusion/inclusion in which the “Others” were those whose cultural and epistemic difference seemed to be unsuitable with the right way of social relation, cultural practice or economic development. Heritage conservation emerged within the context of imagining the national communities and formulating imperial powers in XIX century. International protection of heritage followed this ambiguous origin and it has been made possible in the second half of XX century thanks to its institutionalization and bureaucratization. Such a regime of heritage practice has reached its highest recognition in the last few decades through the deployment of multicultural policies within the context of the neoliberal affirmation of cultural diversity. But the same politics have made it possible the organisation and visualization of a world indigenous resistance based on the cultural relation between communities and the lands, in which the pre-modernity, that is the pre-colonial tradition, is articulated with the global context and participate in it by a counter- hegemonic use of universal categories such as human rights and heritage conservation.

Archaeology is a methodology but it is also a theoretical source for linking past, present and future. It makes possible to give an alternative account of human rights tropes by showing the resistance exercised by whom have suffered those rights as an imposition, and it allows local communities, specialty indigenous communities, to appropriate the universal mean of human rights and articulating it with their own category of thought and experiences. I would like to show how all human rights shall be interconnected and culturalized (this is “thought” from a perspective product of a particular experience) in order to be a real opportunity for social change and development, and so the maintenance of heritage (inasmuch as it is the material and immaterial legacy of the past) for promoting respect among peoples by the mutual acknowledgement of both identity and difference, without avoiding the misunderstandings by virtue of which a real intercultural project is thinkable and enticing.
TH6-16 Abstract 01
Testing twined clothing in Mesolithic
Author - Rimukš, Virginia, Vilnius University, Vilnius, Lithuania (Presenting author)
Keywords: experimental archaeology, Mesolithic, twined clothing
Presentation Preference - Oral

In 2018-2019, some experiments, testing possibilities of (re)constructing twined clothing, were held. They were based on a find from the middle-late Neolithic settlement of Šventoji 2B (Lithuania), dated back to ~4000-2900 BC. The found two specimens were made of lime bast. They were compared with other extant European twines of similar or close periods. Three pieces of rectangular shape were produced, in order to test some technical and functional questions.

In 2012, it was decided to come back to one of the objects, which had inspired some construction and wearing possibilities of the (re)constructed twined clothing. It was an engraving on the aurochs bone, depicting five anthropomorphic figures, which was found in 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 outlines and constructional lines of the clothing, it was presumed, that most of the figures were a rectangular long cloth ("a cloak"), just in 3-4 different ways. Some of the figures possibly wore a shorter rectangular cloth ("a skirt") underneath. Repeating parallel lines of the depicted clothing clearly indicate twining, and actual qualities of the (re)constructed twines do confirm the indication. Thus, it is highly possible, that twined clothing was produced and worn by some Mesolithic communities, i.e. much earlier than the dates of the extant finds had allowed presuming.

TH6-16 Abstract 02
New experimental data for discussing bone and antler softening methods in the Stone Age
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Keywords: antler, bone, use wear analysis
Presentation Preference - Oral

During the speech results of the latest experimental works conducted at the Institute of Archaeology, Nicolaus Copernicus University shall be presented, aiming to see the most effective methods for softening bone raw materials. The subject of the research was both the ease of processing with the use of Flint tools and the possibility to shape the material by bending. The aim of the experiments was to identify the methods 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, fat oil, lime, and boiling in water. Additionally, an unfinished raw material was subjected to processing as part of a comparative test. In the case of soaking-related methods, the samples were exposed to the substances for a 3-week period with regular monitoring of chemical changes occurring therein. Once every week the rate of softening in the raw materials was tested in order to specify their bending properties and their susceptibility to sawing with the use of flint flake.

As a result of the conducted experiments many interesting discrepancies in the effectiveness of individual methods were observed. Some of them seem highly effective, while others appear to be useful only in specific contexts 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.

TH6-16 Abstract 03
Research, experimentation and outreach in the early Neolithic site of La Draga (Banyoles-Spain)
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Keywords: Experimental, Neolithic, Outreach
Presentation Preference - Oral

The exceptional preservation of organic material in the early Neolithic site of La Draga, north-east of Iberian Peninsula has allowed undertake lines of research little developed previously in the region. The research project carried out at the site of La Draga involves experimental archealogy as a methodological tool in order to characterize the technological procedures and for testing the functional hypothesis of tools. Data drawn on these investigations are the foundation stone for the pedagogical project of La Draga, mainly based upon hands experience. These outreach activities are held in the Archaeological Park of the Neolithic Settlement of La Draga, where early farmers dwellings, tools and agricultural plots have been replicated following the results of the archaeological research. In this paper some examples of the interaction between experimental research, digital technologies and outreach activities are presented.
In this paper, we will present the results of five-year Experimental Archaeology Project on making Eneolithic pottery, based on our research in the Kójakdamer–Gumlet–Karanovo VI tell settlement from Subotica-Molu Rosu, south-east Romania. In our work, we have experimented with different hand-making techniques such as building the vessels from one lump of clay, cooling and also molding. Experimenting with the molding technique came as a necessity in our effort to understand the presence of large and shallow plate-like vessels (sometimes larger than 50 cm in diameter), in the pottery assemblages characteristic of these past communities. To understand better the making pots process, we have also tested a series of hypotheses regarding the types of clay, temper, modeling, burnishing, decorating, drying and firing.

Our work is backed up by petrographic and chemical analysis which not only helped us identify the local clay source as the raw material for the Eneolithic pots but also gave us a more precise recipe for the mixture of clay and temper. The data collected over these years now help us to refine 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 - UEFISCDI, project no. PN-II-PT-PCCA-2013-4-2352.

TH6-16 Abstract 06
Experimental studies on ceramic provenance from southern Iberia

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Keywords: archaeometry, experimental archaeology, pottery

Presentation Preference - Oral

The undertaken research addresses a problem of provenance of ceramic assemblages from southern part of Iberian Peninsula in the early Iron Age, particularly differentiation between local and foreign origin of so called Tartessian pottery through experimental studies. This investigation took into consideration mainly the technological aspects of pottery production and focused on both different applied techniques (hand-made and wheel-made) and the morphological and typological diversity of analysed assemblages. The proposed paper makes an attempt to examine the Tartessian ceramics not from a traditional typological posture seeking the chronological sequences; the dominant approach used in this research is based on archaeometric up-to-date methodology, and thereby shed a light of these, still relatively weak recognized aspects of the study of the Iron Age pottery from the so called part of Iberian Peninsula. To achieve this goal a non-invasive X-ray spectrometer has been used in order to determine the chemical differences between ceramics from the local sites of Lower Guadalquivir region. The integral part of this study is an experimental examination of clay paste of sherds, samples of local clay sources and raw material obtained from sites surroundings in order recognize the processes of forming the particular types of vessels and establish the condition and temperature of the firing. All analyzed potsherds and clay samples with various added inclusions were fired in oxidizing atmosphere at several temperatures increasing gradually, starting from 600°C and ending at 1200°C. The physicochemical properties of samples were measured after raising the temperature up every 50°C, their radical changes enable a determination of original firing temperature of prehistoric vessels and possible provenance of clay sources.

TH6-16 Abstract 07
The swatch of antiques bronzes

Author - PhD student Devogelaere, Jonathan, Aix-Marseille Université, Aix-en-Provence, France (Presenting author)

Keywords: Antiques bronzes, Colours, Swatch

Presentation Preference - Oral

As part of my thesis, entitled ‘The colours of bronze ceremonial furniture in the Graeco-Roman world, 200 B.C.E – 200 C.E.: from technical characterization to symbolic values’, I have developed an experimental archaeology project to create a swatch of the variegated colours of antiques bronzes, and to retrace 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, and lead may also be added. The objects examined in this study have a variable percentage of metals, and because of this the colour of the alloy differs. The colour of the alloy can be maintained by polishing but it is also possible to give a patina to the surface of the bronze with a reagent. Other metals and alloys (silver, gold, Cornelian bronze) can be inlaid by damascene or by plating to create polychrome decorations. Unfortunately, the archaeological material in copper alloys suffers the effects of time and deposition, which may lead to corrosion and discolouring of the surface, often green or brown. Archaeological bronzes also may suffer from overly aggressive restorations which scour the original surfaces or cover them with a layer of paint imitating green corrosion.

The platelet samples of swatch have been analysed to determine their elemental composition and their patina, so as to compare them to the archaeological material. Initial results suggests that the colours of bronze luxury furniture very greatly, and that the spectrum of colours is a product of the composition of bronze alloy and the techniques used in finishing the surface, either polishing or patina application.

TH6-16 Abstract 08
A Romano-British glass bracelet: rediscovering a technique

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

Keywords: glass bracelet, Roman Britain, technique

Presentation Preference - Oral

The paper will discuss the production technique of the seamless Romano-British glass bracelets that has been reconstructed by working with the modern glassmakers and through the close inspection of the British glass bracelet fragments. The production of the rigid annular objects composed of coloured glass in Britain is dated to the mid-1st century AD, starting with the Roman invasion in AD 43. Prior to that, Britain had no history of glass bracelets' production, yet the late Iron Age Continental glass bracelets were 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.

TH6-16 Abstract 09
Teaching Experimental Archaeology at Vilnius University

Author - Rimikaitė, Virginija, Vilnius University, Vilnius, Lithuania

Co-author(s) - Luchtauskas, Aleksiejus, Vilnius University, Vilnius, Lithuania (Presenting author)

Keywords: experimental archaeology, Higher education, teaching

Presentation Preference - Oral

Vilnius University is the oldest institution of higher education in Lithuania, founded in 1579. Since 1940's, the teaching of archaeology has started. At present, at the Department of Archaeology of the Faculty of History, the studies of archaeology are organized in three cycles: undergraduate, graduate and post-graduate.

Teaching of experimental archaeology for students of archaeology was started more than ten years ago. Students get acquainted with some basics of experimental archaeology during the first year of their undergraduate studies. A full course of experimental archaeology (6 ECTS credits) is taught during the first year of archaeology graduate's programme. The course consists of theory of experimental archaeology, discussions and numerous workshops. The workshops are lead by experimental archaeologists and ancient technology experts, in cooperation with craft and experimental archaeology organizations (workshop-gallery “Amatu gildija”, workshop-living museum “Seniuju amatu dibutu”, clubs for craft reconstruction “Dvaro maitai”, experimental archaeology club “Palajaut”), as well as some museums (Archaeological and Historical Museum of Kogo club (GutyAir Museum of Lithuania at Rumiškės). The studied periods vary from Stone Age to Late Middle Ages, so thus wide is the range of materials: bone/antler, flint, stone, fibres, plants, textiles, leather, food, non-ferrous metals, ceramics, etc. The course ends up with an exam, which contains a presentation of a particular committed archaeological experiment. At present, the students do very each year, according to the interests of the students, and usually are related with their MA theses. Usually, this course is chosen by a group of 8–15 students.

As the result, students get both theoretical knowledge and some basic practical skills for using experimental archaeology as a research method in their MA theses or, later, in their doctoral dissertations. Also they use their skills at their work as ancient technologists and educators at living archaeology events and historical museums.
TH6-16 Abstract 10
Six years of experimental traseology at Klaipėda University: accomplishments and future prospects
Author - PhD Rimkus, Tomas, Institute of Baltic region history and archaeology, Klaipėda, Lithuania (Presenting author)
Keywords: Experimental archaeology, Stone Age - Early Bronze Age, Use-wear analysis
Presentation Preference - Oral
In Lithuanian archaeology experimental-traseology method currently is a very 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-traseology studies were launched at the University of Klaipėda (Lithuania).
Systematically studies in this institution are orientated on Stone and Early Bronze Ages economies research. In this laboratory, more than 100 units of experimental tools data base are in store, which helps to determine authentic archaeological tool functional dependence.
This paper seeks to represent during the period of six years obtained data of experimental-traseology research of Stone and Bronze Ages flint tools, and to summarize executed experimental results. The research includes archaeological data from major Stone Age and Early Bronze Age settlements and cemeteries from West and South Lithuania sites.

TH6-16 Abstract 11
Experimental archaeology in Latvia: some aspects possibilities for the future development
Author - Dr. Tomsons, Artūrs, Latvian National History museum, Riga, Latvia (Presenting author)
Keywords: education, experimental archaeology, reconstruction
Presentation Preference - Oral
The presentation is dedicated to main stages of the development of experimental approach and applying its methodology in the archaeology of Latvia. Presentation examines main stages of development of the scientific thought and various expressions both in reconstructive experiments and interpretations, both in future possibilities of using it in future scientific research as well as a powerful tool in education of archaeology students and tourism.

TH6-16 Abstract 12
Microwear analysis on early medieval combs
Author - Pi, Nathalie, Vrije Universiteit Brussel, Ghegelo, Belgium (Presenting author)
Co-author(s) - Tys, Dries, Vrije Universiteit Brussel, Brussels, Belgium
Keywords: bone antler, combs, microwear
Presentation Preference - Oral
The typological study of bone or antler combs can give useful information in their chronological and regional diversity. Macroscopic research and chemical analyses on the other hand help us to identify aspects such as the origin of the raw material, the native aspect of the combs as well as their trade value. The possible use of different tools in early medieval ages is well documented through literature. However, much less attention went so far as to questions as what tools and techniques were applied on individual combs as well as questions about their use.
Through microwear research, an attempt is made to reconstruct the production of the comb, as well as its possible life biography. This microwear method was originally, in 1933 by Semenov, applied on lithic objects, but later it was also used on other materials, such as bone and antler. However, the application of early medieval tools on antler with the aim of making combs was not conducted yet.
The method contains three stages. First, starting from a functional hypothesis, an experimental program is established. In this stage combs are processed respecting both the type of raw materials and technical transformation sequences. Secondly, usage traces, developed on the experimental samples and archaeological samples are recorded with low and high power magnification. Finally, the traces on the experimental and archaeological objects are compared. The interpretation of the production techniques in chronologically and regional different contexts can so confirm or refute typological subdivisions. The maintenance of local techniques can be explored, distinct ruptures in used techniques may be associated to other context-based roles, as social, economic and ideological meaning of a material.

TH6-16 Abstract 13
The restructuring of the Artefact Study
Author - Rybka, Ryszard, Nicolaus Copernicus University in Toruń (NCU), Torun, Poland (Presenting author)
Co-author(s) - Kucypora, Pawel, Nicolaus Copernicus University in Toruń (NCU), Torun, Poland
Co-author(s) - Kaelmierczak, Ryszard, Nicolaus Copernicus University in Toruń (NCU), Torun, Poland
Keywords: Early Medieval, Neolithic, reconstruction
Presentation Preference - Oral
The Artefact Study was created in the Institute of Archaeology of the Nicolaus Copernicus University in Toruń, Poland in 2011. It presents archaeological sources, both movable and non-movable objects (features) coming from different sites and time periods. The Study is used for teaching as well as for scientific research, as since its restructuring which took place during the years 2014-2015 it hosts investigations in experimental archaeology. Within this field of study, archaeological hypotheses are generated and tested, mostly by approximating or replicating the feasibility of historical cultures to perform various tasks or tasks, employing a wide and varied methodology in a controlled environment.
The functioning of the Artefact Study with its broad offer fits in the steadily increasing trend towards interdisciplinary research within the scope of archaeological (archaeological) subjects of interest, in general, the need to use ever-growing means for the expansion of knowledge about the past.
The main objectives of the investigations were planned for and are carried out in three major areas:
- Conducting experimental research related to the reconstruction of material culture in prehistoric, medieval, and early modern periods focused on the restoration of used techniques and known technologies.
- Interdisciplinary studies on building, equipping, and organizing basic craftsmen workshops. Comparative research into archeometric data acquired from archaeological objects employing the results obtained by experimental methods.

TH6-16 Abstract 14
New insights into the Eneolithic architecture based on the experimental archaeology
Author - Dr. Lazar, Catalin, National History Museum of Romania, Bucharest, Romania (Presenting author)
Co-author(s) - Ignat, Theodor, Museum of Bucharest, Bucharest, Romania
Co-author(s) - Stan, Sebastian, 'Ion Mincu' University of Architecture and Urbanism, Bucharest, Romania
Keywords: Balkans, Eneolithic; Experimental houses
Presentation Preference - Poster
Currently is evident for all that the archaeological excavations provide only fragments of data, like the pieces of a puzzle, about the architecture of the Eneolithic period. Thus, the architect and archaeologists are constrained in the interpretative process by the existing data, which leads inevitably to the speculative hypothesis, sometimes exaggerated or unrealistic. In these circumstances, the experimental archaeology makes a significant contribution to the overall knowledge and the understanding of the past, therefore further facilitating the implementation of a high-quality analytical approach. The aim of this paper is to examine the results of an experimental archaeology project from Romania, whose goal was the reconstruction of a Giumeliţa culture dwelling (ca. 4500-3800 BC), based on relevant archaeological data. This reconstruction was paired by an inquiry of the volume of materials used for raising the construction in conjunction with the human factor and the time needed for building. Additionally, five years (2011-2015) it has been recorded the degradation process of the construction under the influence of environmental factors. The data collected over these years now help us to get a more accurate picture of the Eneolithic houses and how the Giumeliţa communities build, use and repair this kind of structures. This work was performed through the Partnerships in Priority Areas Program - PN II developed with the support of MEN - UFERISCDI, project no. PN-II-IP-PCCA-2013-4-2302.

TH6-16 Abstract 15
Neolithic Painted Pottery in Lumea Noua Site (Romania). Manufacturing Technology Experimentation
Author - Dr. Gligor, Mihai, "1 Decembrie 1918" University, Alba Iulia, Romania (Presenting author)
Co-author(s) - Bintintan, Alina, "1 Decembrie 1918" University, Alba Iulia, Romania
Keywords: Bronze Age; Neolithic; Experimental houses
Presentation Preference - Oral
The method will be developed to ‘read’ and detect these production techniques and use wear markers of the combs. The aim is to develop a technique that, combined with typological, scientific and context-based research, can investigate in how far these combs reflect aspects of identity.
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 observed, according to the present state of research the only technique that can be definitely attributed to the small Middle Neolithic communities called Lumea Noua cultural group. Being the only material evidence that could lead to the configuration of this cultural aspect for the moment, various archaeometric analysis were made on a large number of samples, in order to extract all the informations regarding the technology that has been used to produce such painted decorations. Based on the material analysis, this paper represent 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 as 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, Tracology
Presentation Preference - Poster

It is known that flint awls are not a common phenomenon in Stone Age inventory. This material has not have a separate subgroup in East Baltic region so far. Nevertheless, there were carried out several classification works: experimental and tracological results in order to represent the data of this research. The material was collected from Lithuanian settlements of Stone Age, which is divided into mesolithic and neolithic time-period. In addition, there were made several copies of mentioned material and completed experiments by using different kinds of animals’ skin: boson, deer, roe deer, bear and mink. Skins and furs, experiments were chosen according to fauna of Mesolithic period. However, mink is, also, a suitable example according to group of small mammals, for instance, martens. This is the evidence not only of fauna of that particular time-period, but, also, shows the thickness of different animals’ skin. Also, attention was paid to the functionality of flint awls utilization in different time-period according to the processing. The experiments were tested by using flayed furs, which were, dried, 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 oriented to specifically one material analysis.

TH6-16 Abstract 17
Expense vs. Effect: An analysis of selected variables that affect the production of cost surfaces
Author - Caswell, Edward, Durham University, Durham, United Kingdom (Presenting author)
Keywords: Cost Surface, GIS, Site Catchment analysis
Presentation Preference - Poster

Cost Surfaces Analysis has become 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, QRA65, Isola). However, this is often at the detriment of hiding the technicalities of the program’s method, which may not always be ideal for archaeological research. As such it is often advised that these pre-prepared systems should not be overly relied on (Herzog, 2013, 164, Rademaker et al. 2012, 38). Yet, there are few papers dedicated to assessing the effects of varying any of the modifiable parameters available to each program, and therefore few guides in selecting an appropriate methodology. Those that do focus only on a limited selection of variables (Gietl et al 2008, Magyari-Szabó, 2013, 184, Rademaker et al. 2012, 38). Yet, there are few papers dedicated to assessing the effects of varying any of the modifiable parameters available to each program, and therefore few guides in selecting an appropriate methodology. Those that do focus only on a limited selection of variables (Gietl et al 2008, Magyari-Szabó, 2013, 184, Rademaker et al. 2012, 38).

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 QRA65), 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 Kuriga, Justyna, Institute of Archaeology, Nicolaus Copernicus University, Toruń, Poland (Presenting author)
Co-author(s) - Gwoźdzewicz, 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 a replica 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 tve are examined. What is more, two large projects related to experimental construction of a Mesolithic hut and a goahti-type shallow pit-house have been completed recently. Projects planned for the future involve, i.e., a series of experiments regarding wood processing with the use of burning as well as aztes made of stone and horn. We hope, that these experiments will prove an excellent opportunity to make a replica of a prehistoric dugout boat.
COMMITTEE ON PROFESSIONAL ASSOCIATIONS

Friday, 2 September 2016, 14:00-16:00
Faculty of Philology, Room K. Donelaičio

Author - Dragana Marko, Saxion University, Amsterdam (Presenting author)
Co-author(s) - Wait, Gerald, Nexus Heritage, United Kingdom
Co-author(s) - Hinton, Peter, Chartered Institute of Field Archaeologists, United Kingdom

Keywords: Committee Meeting, Professional, Associations

Presentation Preference - Committee / Working Party meeting

The Committee on Professional Associations meets annually during the EAA Conference. It will reflect on the developments in the past year. Members will present on the situation in their countries and organisations. The committee sees a great potential for Professional Organizations to improve the place and recognition of archaeologists in society by promoting professional conduct and behaviour in different countries and Europe as a whole. Furthermore, it sees a role for these organizations to take on an advocacy role to enlarge the awareness of the values that are inherently connected and make cultural heritage. It aims to work in close cooperation with the board of EAA and therefore to further the aims of this organisation. During the committee meeting in Glasgow, it looked for possibilities to stimulate the growth of Professional Organisations within European Archaeology. This exchange of ideas and experiences will be continued during this meeting.

TH6-17 Abstract 01
The Institute of Archaeologists of Ireland:
An update on our Activities

Author - Dr. Bonsall, James, Institute of Archaeologists of Ireland, Dublin, Ireland (Presenting author)
Co-author(s) - MacDonagh, Michael, Institute of Archaeologists of Ireland, Dublin, Ireland
Co-author(s) - Sullivan, Eoin, Institute of Archaeologists of Ireland, Dublin, Ireland

Keywords: Advocacy, Ireland, Professional

Presentation Preference - Oral

The Institute of Archaeologists of Ireland (IAI) is the representative organisation for archaeologists throughout the island of Ireland. The aim of the IAI, through the representation of our members, is to advance and strengthen the profession of archaeology in Ireland and membership is open to professional archaeologists working in either Ireland or Northern Ireland. The IAI’s cross-border agenda necessitates engagement with two legislative frameworks as well as two curatorial bodies and a range of interested cross-border groups.

The archaeological profession in Ireland suffered a substantial setback during the recent economic recession. As the economic slump began to impact on the development sector, archaeologists were amongst the first in the chain of pre-development workers to feel the downturn, with loss of projects, employment and wage decreases. Since 2008, the IAI has consistently tried to maintain professional standards amongst our workforce by holding regular Continuous Professional Development (CPD) events which reflects our core principles. The Institute maintains that a vibrant and sustainable archaeological profession actively contributes to the protection of our rich archaeological resource, which in turn contributes to the social and economic well-being of the entire community, driving tourism, social cohesion and local pride. To achieve our aim and vision, we are committed to a range of long-term measures, one of which includes the facilitation of CPD for our members and for non-members. CPD activity is monitored annually by the IAI via an easy-to-use CPD Record.

Over the last year the IAI has:
• Produced and funded our regular annual Journal of Irish Archaeology and bi-annual newsletters Carried out a wide-reaching membership consultation on the direction of the Institute as the profession seeks to recover from recession impact
• Initiated an internal strategic three-year plan for the Institute
• Supported and been a key partner in the all-island Archaeology 2025 strategy review of the archaeology sector
• Represented our members views to government and public agencies
• In addition to our own Annual Conferences, the IAI held our 3rd annual Archaeofest 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
SPECIAL SESSION ON BREXIT

Thursday, 1 September 2016, 11:30–13:00
Faculty of History, Room 211
Author - Cristián Iglesia, Felipe, 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 into mind inclusivity, solidarity and friendship build understanding and trust. Trust encourages integration and unity of purpose.

One of the main focuses of the Round Table will address how we can foster cooperation, define how cooperation can strengthen links and create supportive networks and define how those links and networks can produce enduring engagement and achievement. Archaeologists generally, and especially those within the EAA, have demonstrated a significant capacity to work creatively across borders and archaeologists (our members) have demonstrated the great value of fostering international, open endeavor and communities. We in the EAA are even more committed to this focus now. We will maintain our enthusiasm for imagining a more inclusive, solidarity and stronger Europe and a more representative EAA in that context.

The aim of the Round Table will be to make room for the collective consideration of how EAA should react and respond. Discussion will aim to define how to position the EAA in this new and complex cultural, social and political environment, recognizing that recent events in the UK are reflective of more widespread processes in European societies that we must recognize. This is a moment when an organization such as ours needs to establish and align its position with clarity, drawing on the very significant intellectual capital of its members. We look forward to this important discussion at Vilnius. We look forward to keep our founding European projection in this challenging time.

Because of the immediacy of the decision to hold this Round Table, we are still organizing its format and speakers. However, we want to stress that everyone is welcome and we hope that members will contribute actively to the discussion. The EAA must be flexible but prompt to address this situation and its specific requirements, and this also means we must be practical. We do not see 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.

Friday, 2 September 2016, 09:00–13:00
Faculty of Philology, Room A1
Author - Margaret Owens, 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 - Winderl, Arne, University of Bonn, Bonn, Germany (Presenting author)
Keywords: Economics, Foreign-trade theory, Spondylus exchange
Presentation Preference - Oral

The distribution of Spondylus gaederopus, a shell 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 Grikpenas, 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

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 western 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 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 03
Animal iconology: identifying animal representations to aid archaeological analysis
Author - Dr. Gransard-Desmond, Jean-Olivier, ArkéoTopia, une autre voie 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 dealing 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 archeozoology: botany has enabled the use of plants and pollen in analyses; and experimental testing has improved through contact with various craftspeople. The same interdisciplinarity has been applied to images with the iconological approach. This has created an approach involving identification using biological, geographical and chronological criteria, integration of dimensions such as ethology (animal behavior) into image comprehension, and classical and logical description. This presentation shows how iconology can be useful to archaeology through examples covering:

- Domestic farming techniques in pre-harophic times in Egypt from the 5th millennium BCE and subsistence farming in the Middle-East during the 1st millennium BCE.
- Technicians’ (farmers’) movement between the Middle-East and Egypt during the 5th millennium BCE.

The use of animals by political and religious powers and communities of craftpeople intensified 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 Blakowzacka, 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 has 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 societises as one of the most valuable goods. Moreover, it can not be ruled out that this material might have had special symbolic meaning. Undoubtedly, environmental conditions played an essential role in shaping the picture of mining and metalurgical activities. They were responsible for the way ancient communities organized particular stages of metalurgical production. Due to similar landforms the same pattern of production has been formed in areas of Egypt and southern Levant. This paper should shed light on the subject of the beginning of copper metallurgy during the Chalcolithic period and the Early Bronze Age in areas of Egypt and southern Levant. Importance of crucial natural factors which determined evolution of mentioned craft as well as particular stages of production which depended on them will be presented.

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**GS Abstract 05**

**Mosaics of Ulpiana**

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**Keywords:** Early Christianity, Mosaics, Roman

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Archaeological excavations of Ulpiana began in 1953 and continued with intervals in the following decades. During these excavations, trapezoidal city walls and gates on it; cemeteries in North and West; urban villas and simple houses; workshops; military installation outside the city; three Early Christian churches and a baptistery were discovered. During early years of excavations, mosaics were discovered at two different locations. At the church on the Northern cemetery and a Roman villa. The latter is believed to be a church by some scholars. In 2012 excavations under my direction brought to light an Early Christian church. In the vicinity of church on the Northern cemetery, a Roman villa was found.

During the last third of 2014 and the first half of 2015, a part of late Iron Age cemetery had been excavated. Archaeological excavations took place in the area of a previously known archaeological site of Brežice – Sejsmčica (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 Milan Gočak (first archaeologist curator in Posavski museum in Brežice). During 1982 and his team excavated 58 graves. In 1997, another 10 graves were excavated west of the veterinary station. Until 2014/2015 excavation all together 73 graves were identified in cemetery.

Archaeological excavations in 2014/2015 identified 37 new graves. All 37 of them were cremation graves (the same as 73 previously excavated). Only 9 graves were preserved intact, majority of them were partly or totally destroyed by modern interventions. 17 graves were just partly disturbed as all the grave goods were found in situ and others were preserved in fragments. Graves were simple burial pits, without constructions made from stone or wood. Burial pits contained different grave goods, such as: ceramic vessels, iron weapons, 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 Late La Tene period (LT C, D). Majority of metal artefacts are still undergoing conservation process, thus final chronological and typological evaluation and interpretation of excavated artefacts will be done after all the conservation works finished.
FOR NOTES