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An urban craft in rural settings?
Svensson, Andreas

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22nd Annual Meeting of the EAA

31st August - 4th September 2016 Vilnius

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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, ethnarchaeology, 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 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 sociocultures. Although birds – qua animals – are increasingly regarded as historical agents in their own right, the focus of the session lies on the intricate interplay of bird and human 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 the many additional questions that will probably arise along its path) and thus to take first steps towards an archaeology of human-bird relationships – Archaeo-Ornithology. We welcome theoretical contributions, review-papers as well as case studies.

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

Thursday, 1 September 2016, 9:00-16:00
Faculty of Philosophy, Room 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

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 archealogies/post-humanism and speculative realism. We delineate the potential and significance of studying the human-bird intersection in past archaeological contexts.

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 archealogies/post-humanism and speculative realism. We delineate the potential and significance of studying the human-bird intersection in 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 - Professor Russell, Nerissa, Cornell University, Ithaca, NY, United States of America (Presenting author)
Keywords: Anatolia, Neolithic, zooarchaeology
Presentation Preference - Oral
As they soar into the air and dive below the water's surface, birds inspire awe for their superhuman capacity to pass among earth, air, and water. They are often seen as belonging to the spirit world, or at least as messengers to and from that world. Whereas at earlier sites in the region birds made a significant contribution to human diet, at Çatalhöyük 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 Çatalhöyük 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 Çatalhöyük they are often seen as belonging to the spirit world, or at least as messengers to and from that world.

TH1-01 Abstract 04
The Human-Bird Interfaces in the Enolithic period form Balkans
Author - Dr. Lazar, Catalin, National History Museum of Romania, Bucharest, Romania (Presenting author)
Co-author(s) - Balasnescu, Adrian, National History Museum of Romania, Bucharest, Romania
Keywords: Balkans, Birds figurines, Enolithic
Presentation Preference - Oral
The aim of this paper is to explore the complex interaction between humans and birds in the Kökçademir–Gümelnitza–Karanoğlu VI complexes (ca. 4500–3800 BC) from the Balkans (Romania and Bulgaria). Thus, our investigation will cover the bird figurines iconography study from some key-sites in the target area (e.g. Marșiul, Sultana, Vâlcea, Yunatella, etc.), in correlation with the zooarchaeological analyses, in order to identify the significance of avian species in the Enolithic societies, both symbolically and economically. A special attention will be granted to some hybrid type of figurines that combines the anthropomorphic and zoomorphic elements of humans and birds because it reflects the interface between both species, and it may help to decipher the particular biographies of those past communities.

TH1-01 Abstract 05
Birds in the cave painting during the recent Prehistory in the south of the Iberian Peninsula
Author - Profosera Lazarchi, Maria, Universidad de Cadiz, Cadiz, Spain (Presenting author)
Co-author(s) - Ramos-Gil, Antonio, Universidad de Cadiz, Cadiz, Spain
Co-author(s) - Gonzalez, Juan Luis, Universidad de Cadiz, Cadiz, Spain
Co-author(s) - Mañá, Manuel, Universidad de Cadiz, Cadiz, Spain
Co-author(s) - Cruz, Maria José, Universidad de Cadiz, Cadiz, Spain
Keywords: birds rock painting, megalithic tombs, Recent Prehistory
Presentation Preference - Oral
Birds were not one of the favourite issues in order to be used for rock paintings in the Iberian Peninsula. In spite of that, in the southern end of Spain it is focused the greatest amount of this kind of artistic manifestations. We are referring to the shelter of Tajo de las Figuras (Benalup-Casas Viejas, Cadiz), which represents the 99.94% of the total of bird representations of postpaleolithic 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 extensive bird biodiversity, as a whole. Other scenes, even though they could be related to waterbird hunting, it is also possible that they have a shamanistic ritual significance, in connection with life and death.

TH1-01 Abstract 06
Omniscent or just omnipresent? The perceived role of birds in Early Age Slovenia
Author - Frie, Adrienne, University of Wisconsin-Milwaukee, Milwaukee, United States of America (Presenting author)
Keywords: Birds, Iconography, Iron Age
Presentation Preference - Oral
Human-bird relationships in Early Iron Age Slovenia are marked by apparent contradictions – remains of birds are extremely rare in the zooarchaeological record as a whole, and completely absent from mortuary contexts that are otherwise notable for the deposition of animal remains. Yet birds are the most commonly represented animal in Early Iron Age art, and artifactual decorated in the local Stilus Art style depict birds in almost every scene. Experience of birds would have been relatively constant – birds are almost always present, yet human relationships with them were likely based more on observation than direct interaction. The distinction of these animals was drawn upon and reinforced in local artistic representations, cementing their place as ideologically significant and set apart from domesticates and other wild animals. In this case study, depictions of birds from the Dolenjska Hallstatt culture of southeastern Slovenia will be presented in the context of local human-bird interactions, and modes of depiction as well as contextual relations of avian imagery will be presented to interpret Dolenjska Hallstatt experience and ideologies. It is proposed that not only were birds considered important observers of human action, but in addition birds may have played an important role in ritual, mediating between humans and other animals as well as between humans and extra-human forces.

TH1-01 Abstract 07
“No one was lucky enough to capture an ostrich” - The sociocultural meaning of ostriches and eggs
Author - Dr. Gönster, Yvonne, Wuppertal, Germany (Presenting author)
Co-author(s) - Dr. Hodos, Tamar, University of Bristol, Department of Archaeology and Anthropology, Bristol, United Kingdom
Co-author(s) - Dr. Fletcher, Alexandra, The British Museum, Middle East Department, London, United Kingdom
Co-author(s) - Dr. Caroline Cartwright, The British Museum, Department of Science, London, United Kingdom
Keywords: Iron Age, Mediterranean region, ostrich eggs
Presentation Preference - Oral
As this quotation of Xenophanes (Anabasis 1, 5) suggests, ostriches were the ultimate free-ranging animal during the Iron Age (c. 1200-300 BC). Their Mediterranean habitats covered North Africa, Egypt, Anatolia and further east. Their cultural significance is already well documented in the Bronze Age. Egyptian and Libyan pre-Iron Age rock art depict ostrich hunts. The ostrich was connected to the Babylonian goddess Tiamat, and in Egyptian mythology Maat, goddess of truth and justice, wears an ostrich feather. Well paintings and inscriptions show offerings of feathers and eggs to various Egyptian Pharaohs, and numerous archaeological finds demonstrate that ostrich eggs were used as votive offerings in temples; ostrich eggs were also among the cargo of the Uluburun shipwreck. The shells were manufactured as amulets or beads for necklaces and earrings, or reworked into containers, flasks, cups and other vessels.

During the Iron Age engraved or painted ostrich egg vessels were a luxury item shared between many Mediterranean civilizations, from Assyria, Egypt, Greece, Thrace and beyond. Aside from noting them in funerary and dedicatory contexts, no research to date has sought to understand their trade mechanisms.

Iron Age Assyrian iconography depicts ostriches as wild beasts conquered only by the king/hero, and ostrich bones are rarely found in excavated Iron Age sites. This suggests ostrich eggs were obtained from the wild, only achievable if nest sites are known. The quantity of surviving ostrich eggs suggests lively Iron Age Mediterranean-wide trade. Could that demand be met solely from wild acquisition? Reliefs of Assyrian lion hunts show that wild lions were penned and hunts staged. Could the reality of ostrich egg acquisition have involved captive birds rather than opportunistic retrieval? Did this luxury trade therefore...
stem from a managed environment? A pilot study conducted by myself and colleagues at the University of Bristol and the British
ethnohistoric narratives indicate that select bird taxa mediated the human experience of coastal environments.

Archaeological evidence from the Bering Sea region of the North Pacific indicates that prehistoric human inhabitants possessed
of multiple lines of evidence, including imagery, narrative, and human and animal remains. In this presentation, I discuss the
Kingfishers feature prominently in Chinese art. They are a common topic in medieval poetry and their brilliant plumage – a symbol
of beauty – was used to adorn headaddresses, combs, fans and screens. Clearly mentioned as creatures living in regions to the
species (certainly an underestimate of the real original number). Considerations on the habitats and behaviours of the identified
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.

Wild birds are intrinsically associated with our perception of the Middle Ages. They often feature in heraldic designs, paintings,
and rural evidence and investigate any apparent diachronic change.

The aim of this paper is to discuss bird-related pendants in the Late Iron Age (800-1200/1250 AD) Eastern Baltic. The symbolic
side of the human-bird relationship is usually approached through folklore, emphasising the importance of a Baltic-Finnic creation
song in which the world is formed of eggs laid by a bird. In order to expand the current scope of interpretations, one should
circle distributions of these birds and their roles within the culture. The zooarchaeological dataset reveals that whilst many birds were sourced locally, others required specific fowling trips to more
distant areas of the landscape. Several key species exploited through time and space (such as gannet and guillemot) would have
been acquired from dangerous areas of terrain such as cliff-faces. These targeted avian species demonstrate that fowling was
considered alongside modern species profiles, and contextualised within the wider historically documented tradition of fowling.

Islands that involved collating pre-existing avian data and combining it with new, in-depth analyses. The archaeological dataset is
considered alongside modern species profiles, and contextualised within the wider historically documented tradition of fowling.
The zooarchaeological dataset presented in this paper represents 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
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Wild birds in medieval Italy:
an investigation of their roles in diet, environment and society

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

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

Human-bird interactions in Han-dynasty China
as displayed through kingfisher-ornaments in graves

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

Toward an Archaeo-Omrimthology of the Bering Sea Region

Human-bird interactions, Material culture, Zooarchaeology

Keywords: medieval Italy, wild birds, zooarchaeology

Presentation Preference - Oral

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Presentation Preference - Oral

Wild birds are intrinsically associated with our perception of the Middle Ages. They often feature in heraldic designs, paintings,
and rural evidence and investigate any apparent diachronic change.

The aim of this paper is to discuss bird-related pendants in the Late Iron Age (800-1200/1250 AD) Eastern Baltic. The symbolic
side of the human-bird relationship is usually approached through folklore, emphasising the importance of a Baltic-Finnic creation
song in which the world is formed of eggs laid by a bird. In order to expand the current scope of interpretations, one should
circle distributions of these birds and their roles within the culture. The zooarchaeological dataset reveals that whilst many birds were sourced locally, others required specific fowling trips to more
distant areas of the landscape. Several key species exploited through time and space (such as gannet and guillemot) would have
been acquired from dangerous areas of terrain such as cliff-faces. These targeted avian species demonstrate that fowling was
considered alongside modern species profiles, and contextualised within the wider historically documented tradition of fowling.

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

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

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

Human-bird interactions, Material culture, Zooarchaeology

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to Roman period, across Europe. Particular focus is given to one of the most commonly found birds, the domestic chicken. Comparison of bird species present in avian assemblages at archaeological sites during this period is used to identify cultural and behavioural changes in human-bird relationships. The combination of species, site location, and the type of sites within which they are found can tell us much about the societies with which they are associated, from religious practices, to subsistence strategies, and even entertainment.

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

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

Keywords: Britain, Duck, Goose

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

This paper discusses the changing use of these birds from the early Roman period until the postmedieval period in Britain by combining osteological assemblages from several sites, including a range of different site types and geographical locations. Key changes in the use of these birds will be discussed using four main proxies; differences in taxa frequencies, the relative frequency of examples of depiction and use of birds and value its symbolic role in the Roman Culture.

THI-01 Abstract 15
Food for the Dead or Symbol of Rebirth?
Culinary offerings and incubated eggs from a Roman cemetery

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

Keywords: antiquity, archaeozoology, eggshell

Presentation Preference - Oral

The late Roman site of Oster-Olm provides a fascinating example of 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 Oster-Olm showed signs that could indicate incubation, these alterations were not uniform. Although the eggshell in general showed a roughly consistent pattern of incubated and not-incubated spots. This could possibly have 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.

THI-01 Abstract 16
Bird: bones & images in Iberian Culture 6th-2nd cent BC
use & symbolism in East Iberian Peninsula

Author - Dr. Iborn Eres, Maria Pau, IOR Curultxnis Generalitat, Valencia, Spain (Presenting author)

Keywords: bird bones, bird figurations, symbolic role

Presentation Preference - Poster

The term Iberian Culture, is used to define the group of people who inhabited the eastern strip of the Iberian peninsula roughly between 6th-century BC. Iberian society was highly urbanised and socially stratified (Bonet and Mata 2009). Ruiz 2000, 2003; Ruiz and Molinos 1993). The society was still predominantly agrarian, with agriculture and livestock husbandry constituting the basis for subsistence. However, the area was already incorporated in the Mediterranean trading routes in order to participate in these trading networks mainly with Phoenicians and Greeks (Bonet and Mata 2009; Sammarti 2009). This world was structured into a variety of territories characterised by a complex pattern of hierarchical settlement. The main population nucleus was the oppidum, a large site of around 10-15 hectares and the capital of the political area. The other settlements were 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 Fernández 2013).

Birds 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 birds go with human remains inside urns and pits such as domestic or funerary offerings. The identified species are; chicken (Gallus gallus domesticus), partridge (Alectoris rufa), golden eagle (Aquila chrysaetos), griffon vulture (Gyps fulvus), mallard (Anas platyrhynchos), little bustard (Tetrax tetrix), gægon (Columba livia/oenas), little owl (Athene noctua), barn owl (Tyto alba), Eagle owl (Bubo bubo), white stork (Ciconia ciconia), gull (Larus sp.) and Cory's shearwater (Calonectris diomedea). Some birds are hunted and the bones used to create musical instruments (Iborna 2004; Iborna and Pérez Jorda 2013; Iborna, 2016; Castañ, 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.

THI-01 Abstract 17
To what extent are birds important in Roman gardens?

Author - Mg. Uramova, Valéria, Institute for Classical Archaeology, Prague, Czech Republic (Presenting author)

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

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 birds for example from Livia’s house at Prima Porta near Rome from the 1st century AD and from a house at Viminum (today’s Zoofield) in the Roman province of Noricum from the 2nd century AD. But does it reflect keeping birds in garden itself? On some particular sites are remains of architectural structures reckoned as aviaries, which will be displayed on example from the Roman province of Gaul on Mainz-Vlichen 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 acropolis, hunting wild birds within venatio/munera, which is mentioned in Palladius’ work. Similarly in this way is also reflected a higher social status of the villa owner. Based on literary, iconographic and archaeological sources it is obvious that birds were kept in Roman gardens for pleasure or some use. The meaning of bird’s presence in focus amous is still not sufficiently clarified.
PETRIFICATION PROCESSES IN (PRE-)HISTORY

TH1-02 Abstract 01
Petritication: a concrete comprehensive diachronical concept for past process comparison

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

The moment we want to describe, quantify and compare processes over large distances, from different periods and in diverse material cultures, we have to use abstract concepts. To do this in a highly materialist 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 (Apollite Petrus) it describes increasing durability, weight and regularity in objects and processes.

My personal approach to petrifiction comes from the study of the reintroduction of stone architecture in the medieval period. This – according to M. Shapland – consciousness of choice of stone over wood as building material especially for churches, town walls and funerary monuments is connected with other phenomena like the attempt to normalise calendars, the transition from oral to written communication – e.g. the production of books and especially of historio- and hagiography in the Roman tradition. The introduction of Rome-centred Christianity probably also led to deforestation, parcelling of the land and hierarchisation of society 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 to be overestimated. A diachronic selection like this – attempting to ignore the barriers between epochs and to a certain extent time itself – will at the same time be a chance and a challenge. Petrifiction 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 ‘liqification’. It will be the topic of a follow-up session.

TH1-02 Abstract 02
Liquid time, petrified objects. Concepts of historical change in archaeology

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

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

The theoretical situation and a model of analysis will be explained through cases involving a trans-Mediterranean perspective (i.e. both in Africa and in the Near East and in Mediterranean Europe), during the Neolithic and up to the Bronze Age. 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 architecture responding to the activities and energies produced and concentrated in 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 form-focused, rigid structural shells. Drawing on later prehistoric and early medieval evidence from Britain, Scandinavia and the continent for comparison, architectural analysis will trace such patterns of “petrification” within the domestic sphere.

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activity in the alpine uplands (suggested mainly by palaeoenvironmental proxy data), as if the earliest pastoral groups exploited much more ephemeral shelters. This observation opens a series of interpretative questions: What triggered the construction of these permanent structures during the Bronze and Iron Age? Was it just for functional reasons or was it also a way to facilitate ‘possession’ of this ‘marginal’ environment?

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

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

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

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

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

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

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

by the populace, but not yet as a sport. Those who play, tennis is also an art of the court. Under Louis XIII, tennis was considered as an art by the purists and as a game which are required of a prince. By bringing out the qualities of a player, by allowing a privileged moment of interaction between the opponent. In 1596, Francesco Gregory d'Ierni observed in Paris, tournaments still fill contemporary popular imagery. Tennis is the first such game to be developed which does not involve direct contact with the opponent. In the cloisters of monasteries or in the streets. The change in the flooring of the real tennis court, terracotta and stone paving first, then stone paving only from 1639 onwards, gives some information on the way the points were scored. The ancillary structures associated with the tennis court are a water cistern, latrines and the house of the maître paumier or games master, an artisan who managed and maintained the court and acted as an umpire for the game. He also made balls and rackets. This changing room was also used for rest and refreshments, to play dice, cards andチェス.

This paper gives an account of some of the archaeological discoveries made in the courtyard of the Great Commons of the château, where the King's real tennis court (jou de paume) was excavated. The architectural project was the work of Philibert Le Roy, architect to the King. Architectural features of Louis XIII's tennis court are described, and compared with textual data. Three of the four inner walls are bordered by covered galleries for public enjoying the game. The shape given to the room for the court the paume game has allowed historians to propose two hypotheses for the mediaeval origins of the game. It may have originated in the North of France, and travelled to England in the 14th century, or it may have developed in England and travelled to France in the 14th century. The First object of this paper is to detect the route by which the game of chess entered Scandinavia and to roughly determine the period in which the game was introduced. The second object 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. Considering board games within the framework of mobility raises some key issues around their social significance: how and why did they spread? Movement is, of course, essential to games (as it is to all play) both for the games to work - they are at the core of the ‘capacity to move’ that is the definition of 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 his existence through performance, through combining physical, sensory reactions with mental agility and strategic thinking. At their most successful they can produce a feeling of flow. Refl exively they maintain their distance from the world as a means of re-defining it (including re-locating the individual within it). Board games speak to the mobility of people - physically, intellectually and spiritually. They help to refly and crystallize rituals and social orders whilst at the same time opening up a space for encounters that might change things. They are both of this world and allow movement away from it or the making of new worlds. Board games are both structured by and structure mobility. The next move is yours!

The Mystery of the Shield-Biting Warders.

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 diffusion but as the complex cultural interaction between and across societies and cultures, exploiting trade, military conquest, gift giving and religion and ritual as avenues of exchange and interaction. Considering board games within the framework of mobility raises some key issues around their social significance: how and why did they spread? Movement is, of course, essential to games (as it is to all play) both for the games to work - they are at the core of the ‘capacity to move’ that is the definition of 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 his existence through performance, through combining physical, sensory reactions with mental agility and strategic thinking. At their most successful they can produce a feeling of flow. Refl exively they maintain their distance from the world as a means of re-defining it (including re-locating the individual within it). Board games speak to the mobility of people - physically, intellectually and spiritually. They help to refly and crystallize rituals and social orders whilst at the same time opening up a space for encounters that might change things. They are both of this world and allow movement away from it or the making of new worlds. Board games are both structured by and structure mobility. The next move is yours!
This paper concerns Scandinavian gaming pieces from the Vendel and Viking periods (c. 550-1050 CE). The main focus is on the raw materials used but also on questions of chronology, typology, and distribution. Gaming pieces are 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 Stępniak, Agnieszka, Poznań Archaeological Museum, Poznań, Poland (Presenting author)

**Keywords:** Archaeology, Games, Chess, Objects

**Presentation Preference - Oral**

The chess pieces defined as “Sandomierskie” were unearthed on the stand no 7 in Sandomierz on the Old Town Hill. According to the tradition passed over by Jan Długosz (polish chronicler: 1415-1480), this place is considered to be the oldest part of this town. From the year 1598 on through the period of 10 consecutive years and also archeological works were carried out on some other parts of the Hill. On October 9, 1962 in the south-western corner of the homestead some unique find was uncovered, namely, an almost complete set of chess with only three pawns missing, made of antlers in the Arabic style, now known as “The Chess of Sandomierz”.

This is definitely not only one of the most interesting discoveries of the Early Middle Ages chess pieces on the territory of Poland but also one of the rarest ones 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 pieces 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 no 7 and to determine the context of the appearance of the Chess of Sandomierz in this area. During the two research seasons (2014-2015) many artefacts connected with the elite culture were registered within the area the hut occupied. The exclusive character of the items uncovered both in the hut with the chess and its neighbourhood seems to confirm the above mentioned interpretation of this context. It is a house rather than an ordinary dwelling place. The discovery of a vast homestead or a manor house which was burnt down around the mid-13th century and which might have been the seat of the local elite was very surprising. This offers a new opportunity of interpreting the mysterious presence of The Chess of Sandomierz in this place.

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**TH1-03 Abstract 10**

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

**Author:** Włochoła, 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 on the analysis of their physical characteristics, but also on their archaeological context and on the current knowledge about medieval games.

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**TH1-04 Abstract 09**

**The Invisible Constant. Building New Frameworks for an Archaeological Understanding of Migration as Cultural Behavior**

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

**Co-author(s):** - Dr. Acconcia, Valeria, Università G. d’Annunzio di Chieti-Pescara, Rome, Italy

**Keywords:** Ethnicity, Material Culture Studies, Mobility

**Presentation Preference - Regular session**

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

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**TH1-04 Abstract 01**

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

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**Keywords:** Ethnic identity, Migration, Mobility

**Presentation Preference - Oral**

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

In this paper, we argue in favour of a more open notion of mobility, which needs to be considered as a dynamic process and not only as a vector of material change. Migrations may be large-scale phenomena, taking place independently from local or individual agency, as well as more subtle types of demic spread, taking place on a small-scale and depending on individual agency. Likewise, the traces left behind by people on the move need to be addressed by combining different disciplines and analytical methods. The shift from generalising models to a multi-scalar notion of mobility brings on the table new questions and a new research agenda. By gathering a wide array of case studies, crossing
TH1-04 Abstract 02
Changing world changing creativity?
Human mobility dynamics and late Paleolithic handicrafts
Author - Iovino, Maria Rosa, Istituto Italiano Paleontologia Umana, Rome, Italy (Presenting author)
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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 - Templer, Michael, Neuchâtel University, Enges, Switzerland (Presenting author)
Keywords: Mesolithic, Neolithic, Transition
Presentation Preference - Oral

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

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

Why so early and why so late?
What happened in between in time and space?
Who were the players?
If archaeology is the means by which to write prehistoric history, we need to visualise the players in their environment, and try to understand their lifeways, motivations and evolution over many generations to pretend to grasp the extent of the Transition from a life lived in symbiosis with nature to one in which nature is controlled, and which, unknown to the players, heralded the legacy of explosive demographic growth.

In this paper 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 Neolithic and the 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, Idida, 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 Fennoscandia.

Recent finds from the earliest Mesolithic site in Finland - Jikkvari 1, which is located some 250 kilometers west of the western shore of Lake Onega, reveal one interesting aspect of the earliest colonization of the region. The excavation assemblage contains artefacts made of a rock most closely resembling lidite - a low grade metamorphosed 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 suggest an origin of this material in the Lake Onega Idida deposits.

Maintenance of contacts between the first colonizers of Eastern Fennoscandia with the southern core areas is evidenced by the presence of first artefacts 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.
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 Ezero and Dyadovo with favorable stratigraphic correlations 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 photogrammetric analysis, which identifies kinds of rock and mineral in the pottery with cord decoration under a polarized microscope. The second is chemical analysis, which measures the chemical components of the matrix of the pottery using EDXRF by a fundamental parameter (FP) method. As a result of these analyses, the pottery with cord decoration, as well as plain pottery and pottery with the other types of decorations, in both tell settlements will be classified into local and non-local types. Adding the chronological view to them, the analyses indicate transition and variety of the pottery with cord decoration in the Upper 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 the cord decoration into 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 07**

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

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*Keywords:* ancient DNA, isotopes, Neolithic

*Presentation Preference: Oral*

During the Neolithic period in Scandinaivia the Funnel Beaker complex gave way to the Battle Axe complex, which was later replaced by the more homogeneous Late Neolithic complex. This culture produced the finest flint work in Scandanavian Prehistory and the last megalithic tombs. Immigration from various regions has been proposed as an explanation for the geographic distribution of megalithic burials in western Sweden, another alternative is that the tombs were used by populations from different areas. However, osteological and archaeological research suggests that the graves were used by local families. Earlier research suggests that 25% of the inhabitants of the tombs were from non-local birth. However, in the Late Neolithic there was an increase in human mobility and about 60% of the buried individuals were non-locals. It is interesting to investigate the genetics and the isotopes of the population buried in the megalithic tombs.

In southwestern Sweden, one of the highest concentrations of passage graves and a large amount of pottery are found. There are about 256 known dolmens and passage graves in western Sweden and out of these 255 are located in Falbygden, only 2 of them are dolmens. This dense collection of graves thus allows us to follow the population buried in this area over a long time period.

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

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**TH1-04 Abstract 08**

**Adractic Seafarers. Mobility and Social Practices at the End of the 3rd Millennium BCE**

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*Keywords:* Adractic, Early Bronze Age, Mobility

*Presentation Preference: Oral*

The diffusion of Cellina pottery is a well-recognized phenomenon interpreted as the material traces of migration of small groups on the move from the Danubian 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 Cellina culture is, indeed, an indicator for mobility of the communities inhabiting southeastern Mediterranean at the end of the 3rd millennium BCE. It is difficult to understand the extent of the “Cellina phenomenon” and the “directions” of these contacts, it is evident, however, that in the northeastern Mediterranean there existed a lively and “international” cultural network. Through the analysis of Cellina features and their contexts, this paper will explore different types of mobility and their influence on sociocultural change.

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**TH1-04 Abstract 09**

**(In)visible traces of the exogamous mobility in Late Bronze Age?**

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*Keywords:* cemeteries, exogamous mobility, Urnfield culture

*Presentation Preference: Oral*

In the contribution we would like to present the results of a comparative analysis made on the grave-goods, attires and burial practices from Late Bronze Age (Bl D - Ha A) cemeteries from south eastern Alpine region and Northern Carpathian area. In the end of Mittel and in the beginning of the Late Bronze Age, first cremated graves were documented in the south-east Alpine region (excluding the graves from Copper age). We know of some other individual graves or smaller cemeteries containing several tens of graves. On this basis, we presume that these cemeteries were inhabited by certain deceased members of specific Bronze Age communities. Additionally, the numerous simultaneous metal hoards from Slovenia, which are similar in composition as the rich male graves in the territory of northern Parmonia and Slovenia, could also be in part interpreted as testimonies to the female cemeteries.

Cemeteries from Northern Carpathian area are in this period on the other hand more numerous and they contain some hundreds of graves.

According to our analysis we can state that the best analogies for several grave-goods from the cemetery in Lubljana (Slovenia) can be found in the objects (specially urns) from distant archaeological sites, pertaining to Pityno and Sušec 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 used as urns only in female and children graves. Beside the similarities in the archaeological finds between two research areas, we observe also the similarities in the stone grave constructions. Both in Lubljana and in Radinja a grave construction made out of one stone slab were documented. Likewise, the graves containing only cremated bones placed on the stone plate were found on both sites.

According to archaeological and anthropological data, intercultural contacts between the southeastern Alpine region and the northern Carpathian area can be observed mostly from the archaeological finds contributed to female sphere. Having in mind the fact that most of these object are totally absent in the territories between two research work areas (Transdanubia, Middle Danubian Urnfield 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?
Since the beginning of times, people have relocated and migrated in search of better conditions, raw materials, or in order to obtain trade relations with foreign markets and cultures. For decades, ancient migrations were primarily explained based on the occurrence and quantities of imported artifacts, thus reaching interpretations that were aligned with the later ancient written sources. This was the case with the Greek migrations in Southern Italy, often referred to as the ‘Greek colonisation’. The present paper will focus on different waves of Greek migration in Southern Italy, taking the area of the Sibaritide as focal point, as well as on the methods for identifying these foreign ventures within the archaeological record.

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

Based on analyses of know-how 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.

This study attempts to identify and analyse processes of cultural transformation in south-eastern Sicily when indigenous populations came into contact with ancient Greek settlers during the eighth and the seventh centuries B.C. Historically, it is a crucial moment for Sicily because it initiated an irreversible process of modification of the original indigenous culture. This revolution in material culture is 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 processes were more complex and can incorporate not only a two-way process but also enable the maintenance of distinct cultural identities through the careful selection of cultural features. In order to develop more comprehensive models of cultural interactions are more complex and can incorporate not only a two-way process but also enable the maintenance of distinct cultural and ethnic identities through the careful selection of cultural features. In order to develop more comprehensive models of cultural contacts and the relationships established between indigenous Sicilians and Greek during this specific period, a multi-disciplinary approach was adopted. This paper focuses on the archaeological analysis of materials discovered in southeastern Sicily and in particular from the indigenous habitation site of Monte Finocchito. The site is a critically important case study to understand the complex relationship between indigenous Sicilians and Greek migrants. During the end of the 8th century BC new pottery types, evolving and imitating Greek models, appear in indigenous Sicilian graves as a consequence of these cultural changes. The archaeological analysis allows us to recognize different clay fabrics, to distinguish Greek imports, Sicilian copies and adapted designs as well as entirely new Sicilian forms. The archaeological method permits us to recognize different cultural material objects. The results will be extremely advantageous in tracking indigenous activities, adaptation and adoption and elucidate how the Greek immigration impacted Sicilian societies and local culture. The goal of this study is also to look beyond the cultural material, in order to understand the technology of pottery production and the possible coexistence of imported and local fabrics within a given chronological horizon. In this specific archaeological context, the application of archaeometry, in combination with archaeoanthropological and anthropological methods, is a successful method to understand the social, ideological and material interactions of the indigenous Sicilian community of Monte Finocchito with the Greeks.
TH1-04 Abstract 16
New monuments of Sintashta period in the Southern Pre-Ural as an indication of population migrations

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

Keywords: Late Bronze Age, Potapovka culture, Sintashta period

Presentation Preference: Poster

One of the most controversial problems of the boundary of the Late Bronze Age archaeology is interaction of the population during the Sintashta period. Sintashta culture was allocated on the monuments of South Ural (Chelyabinsk region), and the most well-studied in this region. The settlements (Arkaim, Sintashta, Usbye 1, Kamenny Ambar, Kuyask, etc.) and burial grounds (Sintashta, Krivoe Ozero, Kamenny Ambar, Stepnoe VII, Bolshekarakarynsky etc.) are investigated here. In the steppes of the Southern Pre-Ural area (Orenburg region) monuments of Sintashta period are few. Meanwhile, the region is of interest in connection with a problem of population migrations, especially of interaction between Sintashta and Potapovka cultures. In 1970-1990s Sintashta complexes were investigated in the burial grounds of New Kumak, Ishkinovka II, Gerasimovka II, Bulanovo cemetery (Berezovaya mountain). New monuments of the beginning of 2nd millennium BC were studied in recent years by Orenburg archaeological expedition.

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

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

The funeral ceremony and inventory of Maloyuldashevo I is typical mainly for Sintashta culture; however there are signs of other cultural traditions. This is connected with the location of this complex in the intermediate area between Sintashta and Potapovka monuments.

Most likely, one of the construction horizons of the Maloyuldashevo settlement belongs to the Sintashta period. This is supported by analogies with the settlements of the Sintashta-Potapovka period and the Sintashta pottery in the cultural layer of the settlement.

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

Thus, the Southern Urals steppe at the beginning of the 2nd millennium BC was the region of active culture genesis. Orenburg region is located far from the main Sintashta area, at the territory between the Sintashta and Potapovka areas. New researches of the Sintashta monuments with application of radio-carbon dating and methods of a soil science will provide new important data about the population of South Ural steppes at the beginning of 2nd millennium BC.

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TH1-04 Abstract 15
The Avellino event: a volcanic eruption and mass migration in South Lazio during the Bronze Age?

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

Presentation Preference: Poster

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

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

This means that archaeological and palaeoecological observations of the necessary high chronological resolution and quality can be made to identify changes occurring immediately after the eruption. A joint research program between Groningen and Leiden universities, in collaboration with Italian geologists and archaeologists, aims to demonstrate and document any significant impacts that would result from the presence of the postulated Early Bronze Age refugee population in South Lazio.

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

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

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

Presentation Preference - Oral

The emergence of the lavish burials known as Hallstatt chieftains' or princely graves reflects one of the most noteworthy developments in Early Iron Age Europe. These elaborate elite burials of the Hallstatt C period contain beautiful weaponry, bronze vessels and elaborately decorated wagons and horse-gear and are found primarily in Southern Germany and Bohemia. There is, however, also a small cluster of these burials in the Low Countries. These Dutch and Belgian princely graves contain many of the same objects, all imports from the Hallstatt Culture in Central Europe. New finds and research, including the comprehensive study of the regional and the international perspective, an approach that leads to a much better understanding of the performance of those sociohistorical processes and structures and their evolution on a long term perspective.

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

Author - Dr. Trémeaud, Caroline, UMR 8215 Trajectoires, LVON, France (Presenting author)
Keywords: Bronze and Iron Ages, Hierarchies, Methods

Presentation Preference - Oral

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

Such an approach needs to take into account the difficulties to estimate values. In pretelluric societies, emic approach is not possible; the etic approach is the only one. Thus we need to develop methodological tools in order to class graves against each other.

The focus of my presentation will be to present a methodology developed during my PhD of ranking funerary data, so as to detect social structures. This method 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 elite). These new approaches, 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.
Interpreting the Archaeological Record

THI-05 Abstract 05
The Grave is a Not-So-Private Place: Elite Multiple Burials in Early Iron Age West-Central Europe

Author: Prof. Arnold, Bettina, University of Wisconsin-Milwaukee, Sheboygan, WI, United States of America
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Keywords: Iron Age, mortuary analysis, multiple burials

Presentation Preference: Oral

In his 1894 survey of multiple burials in prehistoric Europe Claus Oetfiger 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-evaluate 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.

THI-05 Abstract 06
Discernable Traces in Textil Archaeology

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

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

Presentation Preference: Oral

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

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

Author: Dr. Shcheglova, Olga, Institute for the History of the Material Culture, St. Petersburg, Russian Federation (Presenting author)
Co-author(s): Rudakov, 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 (Bolesk Kamenets) was published by L.A. Matsulevich in 1934. The study how complexes have been discovered reveals that they are the burials. In Bolesk Kamenets burial was in a stone crypt, built at the base of a high bank of a creek, which flows into the river Stusha. Mapping of all finds indicates their exclusive relationship with the sources of large creeks flowing in deep canyons and at the same time associated with the watersheds of river systems. Discussed sumptuous complexes are very different from the burials of the Chernyakhov culture, even at it’s highest level examples. There are simple common explanations for this difference: 1."Chronological", when the sumptuous burials attributed to later Hun period (the period D3, i.e. 450-470 / 480’s AD), when the Chernyakhov culture no longer exists. 2."Ethnic" Both of these explanations are not satisfactory: 1. Late burials at Chernyakhov cemeteries in the area between the Dniester and Don rivers dated to stages D1 and D2 of European chronology. The presence of glass cups (as set for the feast) is a feature that distinguishes prestigious burial of ordinary cemeteries. 2. There are no grounds for attributing elite single burials to the Hun’s neither by ritual, nor by the inventory. Prestigious items belong to a common in Hunnic time polychrome decorations. Rather we can speak about a direct link with the Late Antique Ruspolia whence come the closest analogues of prestigious weapons, harnesses 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, more clearly than the ordinary general cemetery is 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.

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

Author: Dr. Chang, Claudia, Sweet Briar College, Sweet Briar, United States of America (Presenting author)
Co-author(s): - Tottletote, Perry, Sweet Briar College, Sweet Briar, United States of America

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

Presentation Preference: Oral

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

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

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

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

Author: Prof. Arnold, Bettina, University of Wisconsin-Milwaukee, Sheboygan, WI, United States of America (Presenting author)

Co-author(s): - Tottletote, Perry, Sweet Briar College, Sweet Briar, United States of America

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 iron grave goods, such as found at Alexandrovo or Solotka in present-day south-central Ukraine, skewed 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 display. Few studies of funerary practices critically explore how a different approach utilizing the lens of production (in a performative/ritual sense) might highlight often hidden political facets of burial in Iron Age contexts, as well as more broadly.

Drawing upon Susan Stewart’s (2007) notion of the ‘remarkable’ elements of identification chosen to be iconic of certain periods and events assigned to individuals to demonstrate how burials are acts steeped in political intentionality and manifest power relations. I contend that funerary performances, including audience participation, were miniaturized socially, and perhaps
more importantly sensual, engagements carefully crafted in grander scale cosmologies of meaning that were themselves crucial constituents of social and political life in the Pontic Iron Age, ca. 700 - 300 BCE. During the course of this presentation, I explore the remarkable nature of Pontic Iron Age funerary performances through a careful disassembling and reassembling of grave good assemblages, mound construction, and mortuary landscapes. Utilizing data gleaned from a modest population of mounds and burials from across south-central Ukraine, I focus in particular on how burials and funerary activities were produced and intentionally manipulated as means to legitimize, 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-Goryeva, Maria, Institute of archaeology Tatarstan academy of sciences, Kazan, Russian Federation (Presenting author)
Keywords: Eurasia, kurgan, Scythian epoch, mobility
Presentation Preference - Oral

Several thousands of burial sites of the Eurasian steppe dating to the Scythian epoch are associated with a number of archaelogical 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 analysed to produce a number of their arrangement patterns with respect to the spatial representation of kinship and family hierarchy of the Scythian society and to their system of geographical orientation in terms of cardinal points. Importantly, the regional differences in the spatial orientation shown on the kurgan planigraphic profiles seem to be associated with the cardinal points, showing the 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 archaelogical 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 and the axes 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 archaelogical 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: borders, 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. Literature 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 space of the graves, where material evidence exists to the local region surrounded and shrouded the elite. This paper will consider what message the assorted choice of non-local or non-locally inspired grave deposits, avowed and incidental, we argue that the individuals buried were probably lesser leaders and their partners with some authority and that their tombs represent the unequal distribution of power. They were members of communities bordered by larger, more stable polities, making the politics of frontiers an important framework within which to understand these assemblages.

TH1-05 Abstract 12

Relative Chronology and Statistics of Bronze Age Cemeteries in the Southern Ural (Ural-Kazak steppe)
Author - Schreiber, Finn, University Berlin, Berlin, Germany (Presenting author)
Co-author(s) - Usmanova, Emma, Karaganda State University, Kazakhstan
Keywords: Bronze Age, Eurasia, Multivariate Statistics
Presentation Preference - Poster

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

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

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

TH1-05 Abstract 13

The Origin of the Polychrome Style Jewellery
Author - MA Janik, Paweł, Antiquity of Southeastern Europe Research Centre University of Warsaw, Legionowo, Poland (Presenting author)
Keywords: Huns, Migration Period, polychrome
Presentation Preference - Poster

One of the most characteristic elements of the hunnic culture of the Migration Period is the polychrome style jewellery. In this style the surfaces of gold or golden 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 cõsunquon which the glass or gemstones were set in compartments of soldered strips of metal foil, separated with wire, over a strip of metal foil. The polychrome style is used in ornamenting dress accessories, horse equipment, diadems, weapons, jewellery and other things. Many researchers have divergent opinions about provenance of this jewellery style. According to popular opinion, the polychrome style was not typical only for European Barbaricum like Carpathian Basin, West Europe or Black Sea region, but it existed also in Central Asia, north-west modern China and even Korean Peninsula. Moreover the polychrome style not occurred first time during the Migration Period, but much earlier. There are also some polychrome decorated artefacts from East Europe (Sarmatian culture) and Central Asia (Saka-Hsuan culture and Kencik culture) dated to period between III century B.C. and II century B.C. These artefacts are very similar to polychrome style ornamented objects from the Migration Period. Some scholars (Armhenius 1971, 1988) claim that “barbaric” peoples had not such technology and knowledge to shape and stick gemstones and glass pieces to a gold foil. Other scholars (Schmidt-Pobitora 2002; 237-58) affirm that polychrome style evolved from the hallstattian jewellery traditions. The problem is that there are some polychrome decorated artefacts from Iran and central Asia dated to Achaemenid Period! My poster consist of my investigations of the origin and development of the polychrome style jewellery.

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 later Han Dynasty Protectorate of the Western Regions, another set of burial goods, known from excavations at Gansu, and particularly in the tomb of Chenbi at Baise, Xingping, 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 easterly burial practices and items from dynastic China. The comparison of these two settings will document the preference for exotic typical of borderlands, especially in times of expansion, political ambition and unrest. Bearing in mind that the choice of materials for one’s tomb is deliberate and not incidental, we argue that the individuals buried were probably lesser leaders and their partners with some authority and that their tombs represent the unequal distribution of power. They were members of communities bordered by larger, more stable polities, making the politics of frontiers an important framework within which to understand these assemblages.
Breaking and making the ancestors.

Author: Louwen, Arjan, Leiden University, Leiden, Netherlands (Presenting author)

Keywords: Personhood, Selection and Transformation, Urnfield graves

Presentation Preference: Poster

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

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

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

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

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

In this paper I will discuss some preliminary thoughts and present the first results of my research.

LIFESTYLES AT MEDIEVAL CASTLES: CURRENT METHODOLOGICAL APPROACHES

Saturday, 3 September 2016, 09:00-13:00

Faculty of Philology, Room SFS

Author: Rundkvist, Martin, Saltsjobaden, Sweden (Presenting author)

Co-author(s): - Wille-Jørgensen, Dorthe, Danish Castle Centre, Vordingborg, Denmark

Keywords: castles, medieval, methodology

Presentation Preference: Regular session

This session gathers researchers working with the way people lived in Medieval castles. It aims to showcase the best current methodology to excavate, sample and study the culture layers in and around castles. This also includes work with museum collections from earlier excavations, laboratory methods for extracting information, and strategies for placing the data in a fruitful dialogue with written sources. Important questions are how to identify the functions of buildings and rooms (possibly changing over time), daily activities, diet and the performances of the courtly/chivalric lifestyle, all in relation to the various social and gendered groups who inhabited a castle. The session looks at castles from the viewpoint of their inhabitants, not of their architects, their military commanders or besieging armies.

Finding and understanding the gardens of medieval castles

Author: PhD-student Andreassoon, 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?

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 ascertainment.

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, zoocronological analyses, as well as reinterpretation 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 and interpretation on their formation, to figure out how much these are “typical” or “special” deposits. A few examples will be given in the presentation.
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) - Kaminskiški, Irina
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 infrastructural objects.

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

The mirror frames are round-shaped with a round socket for a reflecting plate. The majority of 9 frames are turned from softwood planks. One frame is made of pine (Pinus silvestris L.), two - of spruce (Picea abies (L.) H. Karst) and three – from 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 mass-produced 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 both beauty and personal hygiene. Being luxury goods they showed the social status of a person too. Perhaps the proportions of these items were influenced by Christian values of the importance of cleanliness. The prevalence of the combs in certain territories is coherent with the liturgical rites or rules of some monastic orders, the mirrors have been considered the symbol of vanity for a long time.

Presentation Preference - Oral

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

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

Keywords: Iron nails, Klaipeda castle, Medieval

Presentation Preference - Oral

This study is dedicated to introduce the auditor with currently in Lithuanian archaeology not widely analysed archaeological findings group – iron nails. In 2014, during archaeological excavations of 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. The biggest collections of these artefacts not only in the eastern Baltic area, but also one of the biggest in the region of northern Europe. Based on this vast amount of archaeological material typology of iron nails were compiled, which resulted discussions about functionality of separate types of nails.

This study focuses on during archaeological excavations in year 2014 in Klaipėda castle obtained iron nails types function, their adaptability in the old Klaipėda city constructions and the mode of life. Latter research resulted more data about Medieval and Modern ages of Klaipėda castle, and also city historical development.

Presentation Preference - Oral

TH1-06 Abstract 06
Glimpses into the armed life in the medieval castle of Raseborg

Author - M.-A. Tarvainen, Elin
University of Helsinki, Helsinki, Finland (Presenting author)

Keywords: Material culture, Medieval castle, Weapons and armour

Presentation Preference - Oral

From the end of the 14th century to the middle of the 16th century, the castle of Raseborg was the administrative center of the region of Western Nyland (Fl, Uusimaa) in Finland. The ruins and surroundings of the castle have been under research since 1890. The most recent archaeological investigation has been done 2008-2009 and 2014-2016 especially concentrating on the research of the surroundings of the castle. During the restoration works and archaeological excavations done within these 126 years there has been collected diverse find material containing bunch of objects related to military life. Because the historical sources related to Raseborg are quite fragmentary, these are objects crucial source material when trying to interpret the military aspects of the life in the castle. Raseborg was definitely a stronghold that needed to be equipped in case of attacks or sieges. About this tall especially weapons mentioned in the inventories of the castle.

As well as indicating preparation for conflict, weapons and armour belonged to everyday life at Raseborg. For example, they were a part of military dress, so it is clear that in a place where soldiers lived and military culture was clearly visible, some remains of military culture would be found. About this side of military life tell especially personal weapons and armour, that are not visible in written sources related to Raseborg, but can be reached via archaeological finds. By studying the found objects and historical sources related to the castle and comparing the data collected, it has been possible to consider the military side of the life of the castle more critically.

Historical sources have given the archaeological material the context they needed so that the people behind the objects could be reached more closely.

Presentation Preference - Oral

TH1-06 Abstract 07
A Fief Holder's Castle. Case study of Häme Castle in Finland in the beginning of the 16th century

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

Keywords: Häme castle, Tott family, written sources

Presentation Preference - Oral

This case study is based on the written sources, the letters which are published e.g. in Diplomatarium Fennicum and SDHK (even if the building itself gives inspiration). The aim of the paper is to examine in which way the castle and the life in it is mentioned.

Keywords: Historical sources have given the archaeological material the context they needed so that the people behind the objects could be reached more closely.

Presentation Preference - Oral

TH1-06 Abstract 08
The use of space at the castles of Östergötland province, Sweden

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

Keywords: Castles, Medieval

Presentation Preference - Oral

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Historical sources have given the archaeological material the context they needed so that the people behind the objects could be reached more closely.

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

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**TH1-07 Abstract 01**

**Introduction. The selective deposition of metalwork**

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

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

**Presentation Preference:** Oral

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

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**TH1-07 Abstract 02**

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

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

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

**Presentation Preference:** Oral

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

Among these finds we find a well-preserved wooden stool with Bronze Age carvings from Høstad outside Trondheim, found together with wooden platters and cups probably used in a ritual meal. Although there are differences in how the various objects were treated and deposited, they all seem to follow the same distribution in time, with significant peaks in the late Neolithic/Early Bronze Age (c. 2350-c. 1500 BC) and at the end of the Bronze Age (c. 800-500 BC). Thus, they seem to represent related practices.
Taming the Might of Bronze – Localisation of Bronze-Related Ritual Practises in Bronze Age Finland

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 Scandinavian origin) and local casting of Russian bronze artefact types. Interestingly, while many of the bronze object types encountered in Finland were obviously connected with long-distance networks, their deposition patterns appear highly localized even within the area of Finland. Cells and daggers seem to have been especially prone to change their roles when travelling between eastern and western or southern and northern Finland. Such regional differences are discernible not only in differential treatment and significance of specific artefact categories but also in general relations between bronze technology, mortuary rituals and ritualization of landscape. This paper suggests that local (ritual) practices 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.

Early Bronze Age metalwork deposits in Denmark

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 nonmetalliferous 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, ideological or ideological-economic relations exists in the area, going back to early archaeologists from the 19th century and their interpretations. Another research tradition distinguishes different categories of non-religious hoards, for example metalworkers’ hoards and traders’ hoards. However, these rigid classifications fail to fully explain these deposition practices.

More recent research has shown that patterns seem to have existed regarding deposition of certain objects in wet areas, like bogs, and other objects in burials. The emergence of these deposition practices in the Early Bronze Age in Denmark, going back to the Neolithic, is the topic of the present study, with a particular focus on Jutland. Selective metalwork deposit practices in northwestern 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.

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

In the summer of 2014, a late Bronze Age hoard was found and excavated in Northern Jutland, Denmark. The hoard not only contained both male and female items, but also several parts of horse harnesses and 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.

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

During my PhD I was able to study and to characterize the hoard practice of five European regions during the Bronze Age. These areas were chosen according to their high number of hoards and their affiliations to different cultural complex or their strategic position. The study focused on: Western Carpathians, the Mittelalle-Saal-Gebiet (central Germany), Denmark, the Burgundies doors (Switzerland, Eastern France, south-eastern Germany) and the Amorcan Massif (Western France). The single finds were included in the study, since they are part of the same practice as the so-called metal hoards. The aim of this PhD was to study the high variability of these hoards and single finds in space and time, in order to better understand this social practice. In this way, different statistics have been used in order to get a DBS 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 boxplots 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 in the Burgundy doors which have a lot of immersed single finds. The favourite objects are different from one region to another: axes in the Amorcan Massif and the MESG or weapons in Denmark and the Burgundy doors. In terms of composition, differences appear between the studied areas. Thus, the Amorcan 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 contents could have been also a regional preference, as it is well known in Western Carpathians but rare in the Amorcan Massif and totally missing in Denmark.

Regarding to several criteria, some of them appeared earlier in the studied regions in the Amorcan Massif and the MESG than in Denmark and the Amorcan Massif. In this way, it seems that some modalities of the Bronze Age hoards practice took place first in Central Europe before spreading to Northern and Western Europe. Besides, this hoard and single find practice necessarily reflects individual and collective initiatives.
TH1-07 Abstract 09
Fragmentation as a common feature in European Bronze Age hoarding
Author: Dr. Morszeck, 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 „Bruchzerfteinte“ (scrap hoards) and to discuss these finds. We will consider especially depostions where broken pieces outnumber all other metal pieces. To illustrate this the central German „scrap hoard“ from Elsterwerda was chosen consisting of more than 320 bronzes, most of them broken, bent, damaged or cut into pieces: casting debris, tools, ornaments and weapons. The aim is to entity the variability of fragmentation, the degree of typologically important bronzes and the relation of regional versus imported artifacts. Similar structured scrap hoards from different European regions will be introduced and compared.

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

TH1-07 Abstract 10
Places of deposition of metalwork assemblages in West Bohemia
Author - Prof. assist. Jirí, Luboš, Institute of Archaeology of CAS, Prague, Czech Republic (Presenting author)
Co-author(s) - Luboš, 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 territory 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 landscape, watercourses and ravines. The connection of West Bohemian bronze hoards to such features indicates their sacral function, likely as votive offerings.

TH1-07 Abstract 11
The Copper Highway - An Overview of Early Bronze Age Hoards in South Bohemia
Author - Dr. John, Jan, University of South Bohemia, Ceske Budejovice, Czech Republic (Presenting author)
Co-author(s) - Chvojka, Ondřej, University of South Bohemia, Ceske Budejovice, Czech Republic
Keywords: copper ingots, Early Bronze Age hoards, South Bohemia
Presentation Preference - Oral

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 bronze.

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?

TH1-07 Abstract 12
Urnfield Period hoards in South Bohemia
Author - Doc. Chvojka, Ondřej, University of South Bohemia, Ceske Budejovice, Czech Republic (Presenting author)
Co-author(s) - John, Jan, University of South Bohemia, Ceske Budejovice, Czech Republic
Keywords: 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 C2/D – Ha B3) were known 15 years ago. In the last years the number increased to 81 currently registered hoards. In comparison with the older finds, the most of new hoards are exactly located and in many cases documented in situ, which help us to interpret them, sometimes with the help of chemical and archaeobotanical methods. The new finds bringing extraordinary quantitative as well as qualitative enrichment of our knowledge of this Bronze Age phenomenon. Unfortunately only a (small?) part of new metal-hoards are deposited in museum collections, while many others disappeared without any documentation in private collections.

TH1-07 Abstract 13
O´ mighty Danube. The deposition of swords in rivers in the area of middle Danube
Author - Mgr., PhD Báca, 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 continued generally over periods and reached its peak at the beginning of the early urnfield period (8D-8B-II). Strikingly, 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, yet not published research. Since hallmark studies by W. Torbittige, 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 - Bácskayni, Vajk, Hungarian Academy of Sciences, Budapest, Hungary
Co-author(s) - Pyrzycki, Tünde, Northwestern University, Department of Anthropology, Evanston, United States of America (Presenting author)
Keywords: Bronze Age, Carpathian Basin, selective deposition
Presentation Preference - Oral

The study of Bronze Age metalwork in Hungary has a long history; however, it has focussed mostly on typological and chronological issues, within a traditional cultural-historical interpretative framework. The famous hoards of the Hajdújánosi, Törökényi, Otrokényi, Bácskayni and van den Berghe, Tökölnémedi, Bácskayni, Törökényi, and van den Berghe, Tökölnémedi hoards remains challenging.
and Koszider ‘hoard horizons’ have provided ample material for such analyses. The turn towards a ritual interpretation of the deposition of metal in Bronze Age Europe has hardly been felt in local scholarship. The aim of our paper is to change this situation and to analyze Middle Bronze Age metalwork from the Carpathian Basin from the point of view of selective deposition. We will highlight the patterns observable in the composition of these hoards and compare them with other depositional contexts such as graves and settlement finds. Based on these comparative analyses we will attempt to reconstruct various social practices that involve the removal of metal objects from circulation.

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

Author: Hvoj, Katalífa, 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 is a region with a high density of metalwork hoards present throughout all the phases of the Bronze Age. Based on these comparative analyses we will attempt to reconstruct various social practices that 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 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): Bártfai, Péter, Miskolc University, Miskolc, 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 State. 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 burial contexts. 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 Póbol Kamik contains over 30 stone moulds, including some for objects not known to exist in this area in positive.

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

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

In this paper I address the distinctiveness of the metalwork deposition patterns traced in the Lower Danube region during the Late Bronze Age (LBA). This calls for the analysis of hoards and single finds found in the region in terms of content, treatment, and context of deposition which may later on involve the interpretation of the underlying cycles of activity and the motivation behind deposition. Based on the metal artefacts distribution within the landscape we observe that most of the hoards follow the main river streams, concentrating on the hills area or on the lowland, in the north and south of the Danube. The main metal artefacts in the study area are the socketed axes and sickles which are widely distributed, especially in hoards. If we analyse the patterns of deposition we can observe a group of hoards containing only a single type of artefacts. The preferred objects are the socketed axes of the sickles. Not only finished good quality artefacts were chosen for deposition; stone moulds used to obtain the bronze artefacts were also included in hoards. Two of the hoards contains moulds which were used to produce socketed axes widely distributed in the region, while the hoard from Póbol Kamik contains over 30 stone moulds, including some for objects not known to exist in this area in positive.

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

Author: Kobil, Josip, Transcarpathian regional museum, Uzhgorod, Ukraine (Presenting author)
Keywords: Bronze Age, Metaldeposition, Ukraine
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. As the title of this session proposes, the deposition of metalwork is one of the defining characteristics of the European Bronze Age. As the title of this session proposes, the deposition of metalwork is one of the defining characteristics of the European Bronze Age. As the title of this session proposes, the deposition of metalwork is one of the defining characteristics of the European Bronze Age. As the title of this session proposes, the deposition of metalwork is one of the defining characteristics of the European 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. As the title of this session proposes, the deposition of metalwork is one of the defining characteristics of the European Bronze Age. As the title of this session proposes, the deposition of metalwork is one of the defining characteristics of the European Bronze Age. As the title of this session proposes, the deposition of metalwork is one of the defining characteristics of the European Bronze Age. As the title of this session proposes, the deposition of metalwork is one of the defining characteristics of the European Bronze Age.
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 selection 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 as a commodity and flows, and thus also upon the underlying metalwork depositional traditions and the ways in which metal was thought about, used, recycled and de-commissioned. 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 of focus on river finds, but also reveal whether objects deposited in and lands represent a practice steered by ideas and motivations contrasting from those of river depictions. The aim of this research is to identify a potential cognoscible correspondence between the rise and fall of watery depositions and dry-land hoards and to reveal it communities in the Middle Rhine Valley shared the same ideology in the practice of deposition.

**TH1-07 Abstract 22**

Selective Deposition of Metalworking Remains in Bronze Age Britain

**Author:** Dr. Adams, Sophia, University of Bristol, Bristol, United Kingdom (Presenting author)

**Co-author(s):** Dr. 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 extraction ore to the finished objects. This paper focuses on the deposition of the material in between, the copper and bronze artefacts used for and derived from melting, casting and finishing the metal objects: ingots, moulds, casting debris and tools. Just as patterns are visible in the placing of complete and deconstructed objects so too are patterns present in the deposition context and selection processes behind the deposition. 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:** Kateka, 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 hypo-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 findspots.

Recognising these patterns has for the most part been a qualitative process, which relied on a visual assessment of the distributions; a difficult task considering the seemingly random distribution of most metalwork. In this context, identifying and evaluating any depositional patterns is best handled through the use of GIS and spatial analysis, which surprisingly has not been applied to the Bronze Age metalwork data in Britain. This paper explores the long term potential of wide scale application of multivariate logistic regression and Monte Carlo simulations to the distribution of Middle Bronze Age (c. 1500 - 1150 cal BC) metalwork, through a regional case study focused on the Isle of Wight. The aim is to establish whether any significant relationships between the findspots and their landscape settings can be identified, and if these varied between hoards and single finds.

Focusing on a relatively small, naturally bounded region with a high density of Bronze Age finds, allows us to understand the suitability of spatial analysis to the data and questions at hand, and relate the structure of the data-set to cultural processes leading to deposition with a degree of confidence and subjectivity not afforded by qualitative research.

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

**TH1-07 Abstract 24**

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

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

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

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

**Presentation Preference – Oral**

In this paper we examine a specific example of selective deposition, Bronze Age Gewässerfunde from the River Trent, in the English East Midlands, as compared to the regional assemblage for Central England. The Trent has a major assemblage of more than 170 metal artefacts known from watery contexts. Most of the material dates to the Middle and Late Bronze Age, with fewer Early Bronze Age artefacts; it is weighted to high-status weapons, particularly from the Middle Bronze Age. Distinct clusters of finds can be noted, particularly in the section of the river close to Nottingham, where some 40% of items were found. The river assemblage is dominated by weapons, in contrast to the regional assemblage for Central England as a whole, which has different characteristics and is dominated by tools. The River Trent material also shows marked differences in character to the contemporary assemblage from the nearby River Witham, well known in the literature for the deposition of prehistoric metalwork. This is surprising, as the River Witham flows as close as 4 km to the River Trent. It has become a commonplace of the archaeological literature to argue that Gewässerfunde are the result of ritual behaviour. We argue that the special character of the River Trent metalwork, high prestige and male, and its contrasting nature compared to the regional assemblage, marks it out as special and that the most parsimonious explanation for its deposition is that it was indeed ritual in character, perhaps in the context of funerals, and that this behaviour was concentrated at a number of special places along the river.
TH1-07 Abstract 25
Late Bronze Age metal deposits in the West fringe of NW Portugal: contingencies

Author - Sampaio, H., Laboratório de Paisagens, Património e Território (Lab2pt), Guimarães, Portugal (Presenting author)
Co-author(s) - Bottencourt, A., Laboratório de Paisagens, Património e Território (Lab2pt), Guimarães, Portugal

Keywords: Agency, Metal hoards, Mirro

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 Iberia, specifically, in the Atlantic fringe of the North-western Portugal (between the basins of rivers Ave and Mirro) 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 age.

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.

TH1-07 Abstract 26
Between two worlds – Hording practices in the Caucasus between European and Near Eastern traditions

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

Presentation Preference - Oral

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

TH1-07 Abstract 27
Non-burial metalwork depositions in Bronze Age China: a case study of the Shang

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

Presentation Preference - Oral

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

TH1-07 Abstract 28
On chronological ‘firsts’ in the Bronze Age. Selective deposition and the visibility of innovations

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

Presentation Preference - Poster

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

TH1-07 Abstract 29
The middle bronze Age necropolis in Gilareva-the Mycenaean influence in Kosovo

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

Presentation Preference - Poster

Kosovo’s favorable geographic position in the central Balkans has enabled its connection with neighboring and farther territories, thus making the influence of various cultures possible from the earliest periods. The development of early prehistoric cultures in Kosovo has been sufficiently explored through systematic work. Nonetheless, there is insufficient knowledge on the development of the Bronze Age in Kosovo. With the finding and excavation of the necropolis in Gilarevë, important new steps have been made to complete this gap. Excavations in Gilarevë have provided the most precise data for solving important problems of the Bronze Age in Kosovo, as well as for the development of period as a whole. Two necropoleis have been identified marked as Gilarevë and B. Both can be dated to the XV and XIV centuries BCE. So far, 48 grave constructions have been found, consisting of two types of burial practices: inhumation and cremation. Regarding the analogies and chronological determinations of the bi-rural burial practices it is possible to conclude that inhumation, with or without stone constructions, is the older type of burial. The task of dating the graves with cremation was conducted through reference to urn fragments, specifically their handles, which can be placed in a broader time frame. Dating the graves with inhumation can be done through reference to other numerous finds, some of which have analogies in the larger geographical region, such as jewelry, weapons, and ceramics. The cultural material also, which is quite exclusive and in particular the weaponry, attests to the high degree of knowledge of metal manufacture, production techniques, as well as decoration. The Gilarevë 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-Pelagonian. Excavations in Gilarevë 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. Thusty, the Bronze Age in Kosovo becomes and important stage in the formation and development of the Illyro-Balkan peoples, their culture and their society.

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

TH1-07 Abstract 30
“Multienvironmental” concept in Early Iron Age offering contexts of Central Asia

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

Presentation Preference - Poster

“Multienvironmental” concept is a model of ancient population worldview. It was build basing on Iron Age archaeological sources from Central Asia, especially on so-called “offering” contexts.

TH1-07 Abstract 31
On chronological ‘firsts’ in the Bronze Age. Selective deposition and the visibility of innovations

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

Presentation Preference - Poster

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

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

Author - M. A. Postma, Daniaj, Groningen Institute of Archaeology, Lelystad, Netherlands (Presenting author)
Co-author(s) - Romankevicz, Tanja, University of Edinburgh, School of History, Classic and Archaeology, Edinburgh, United Kingdom
Co-author(s) - Postma, Daniaj, University of Groningen, Groningen Institute of Archeology, Groningen, Netherlands
Co-author(s) - Winger, Katja, Freie Universität Berlin, Institut für Prähistorische Archäologie, Berlin, Germany
Keywords: building, reconstruction, timber
Presentation Preference - Regular session

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

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

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

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

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TH1-08 Abstract 01
Building on buildings: creating a solid foundation for the contextualisation of building remains

Author - M. A. Postma, Daniaj, Groningen Institute of Archeology, Lelystad, Netherlands (Presenting author)
Keywords: Buildings archeology, 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 applicable to the (Peatlozen) sandy soils, where poor preservation conditions enable quick and fairly straightforward documentation of postholes and other, mostly negative soil features. Over the years, numerous typologies have been built up which outline regional groundplan varieties and their development through time. But this conventional typological approach has recently been criticised for not having moved beyond basic data classification. Theoretical interpretations, on the other hand, may be said to push our understanding of past societies beyond what can currently be established on the basis of building remains. Viewing these typological and theoretical approaches as opposites in archaeological settlement research, I believe that they are divided by something of a methodological gap. The current situation in Dutch settlement archeology seemingly hampers the development of a single, both highly informative and well-founded approach for researching past architecture.

This paper presents a simple strategy to avoid a more solid argumentation for interpreting archaeological building remains. It is argued that we should not move away from classic groundplan typologies, as some archaeologists suggest, but neither should we lower our expectations when it comes to interpreting these plans in economic, socio-political or ideological terms. Instead, we elaborate on well-established research strategies in such a way that they can support each other; as Triebes (2009, 515) puts it: “Contextual analyses should always proceed from better- documented interpretations.” In order to really understand ancient building traditions, information on the use and technological of built structures will have to be an integral part of any methodological “building blocks”, as a means of closing the gap between archaeology and interpretation. It will be demonstrated that the concept of a ‘functional typology’ can provide a framework for systematically building up a well-founded, yet holistic view of excavated ground-plans. The key objective in setting up a functional typology is to analyse and explain how ancient buildings functioned in their various respects. Starting as objectively as possible, the level of interpretation gradually increases to a total of five steps: 1) typological analysis, 2) functional use analysis, 3) technical analysis, 4) reconstruction and finally 5) contextualisation.

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


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TH1-08 Abstract 02
Hands build a house but what makes a home? Populating space in an Anatolian Early Bronze Age village

Author - Dr. Piccione, Paola, Rome, Italy
Co-author(s) - Dr. Alvaro, Corrado, Dr. Piccione, Paola, Rome, Italy
Co-author(s) - Dr. Alvaro, Corrado, Dr. Alvaro, Corrado, Rome, Italy
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Co-author(s) - Dr. Alvaro, Corrado, Dr. Alvaro, Corrado, Rome, Italy
Keywords: Anatolia, Early Bronze Age, Household archaeology
Presentation Preference - Oral

In this session we seek papers that explore the knowledge about past peoples as they spent and shaped part of their lives in the protected space under the home roof. We seek a discussion on the archaeological evidence and the reconstructions of those spaces and how to maintain a sense of academic objectivity throughout the research process. Perhaps an even more ambitious question: through credible architectural reconstructions and our understanding of past home spaces, can we inspire the design of family architecture in a sustainable future?
Context of known settlement remains in the south-eastern Alpian space. The emphasis will be put on the architecture, organization of space and combined with the GIS and LiDAR analysis of the settlement area and its surrounding.

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

Author - Dr. Nouwen, Annet, University of Groningen, De Punt, Netherlands (Presenting author)
Keywords: human remains, Northern Netherlands, Ritual practice
Presentation Preference - Oral

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

Ezinge became famous because of the well-preserved remains of 85 longhouses, dating from the 5th century BC until the early middle ages. The lower parts of wooden buildings often were still preserved in situ, revealing the structure of these 3-staged, two-party 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 remainders of the dead which were collected after a process of excarnation) 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 - Ekroth, Susanna, SAU, Uppsala, Sweden (Presenting author)
Co-author(s) - Celin, Ulf, SAU, Uppsala, Sweden
Keywords: Building construction, Sunken floor hut, Viking age
Presentation Preference - Oral

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

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

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

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

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

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

Author - PhD student Qviström, Linda, Stockholm University, Stockholm, Sweden (Presenting author)
Keywords: Buildings, Darkness, Light
Presentation Preference - Oral

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

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

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

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

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

Author - Magnusson, Reidar, 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 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 post 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, Askov, 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? The paper will present how architecture was used to express and manipulate identity and social groupings in the settlement, and discuss what the consequences of the “distorted” space within the house could have.

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At the hearth. Daily life, and domestic architecture in Early Iron Age farmsteads of Western Denmark

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 macrofaunal - as well as geochemical evidence collected on settlement evacuations in the last 20 years.

By combining the two types of evidence, it is possible to establish a generalized picture of the development of domestic activities. The longhouse is throughout the Iron Age at the heart of domestic life with evidence of food processing, storage as well as stalling livestock. However, during the Early Iron Age some activities, both specialized crafts and to some extent food preparation are moved into nearby outbuildings and the fencet 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 vote 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 vote deposits have created a sense of homeliness and interconnectedness between the house and the household members. Though these developments at the same time set individual households apart from other households in the growing village communities by stipulating social differences.

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

Charting the microstratigraphic life-cycle of an early Roman urban property, Roman Stilchester, UK

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

Building on this previous research, this paper will chart, using a micromorphographic approach, the evolution of a dynamic property, early Roman timber building 8, which stood from the period immediately after the Roman conquest (A.D. 43) until c. A.D. 125/50. By the end of the life of this property, it had taken on an interesting architectural form comprising a 'zig-zagged' 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 perhaps even 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 macrofaunal - as well as geochemical evidence collected on settlement evacuations in the last 20 years.

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

Understanding household activities: an examination of two Medieval dwellings in Atlantic Scotland

This paper will discuss the organisation of space in two houses excavated in the Western Isles of Scotland. One dates to the late 11th century the other to the late 13th century AD. They provide the opportunity to explore change across a major political division; the transfer of political power from Norway to Scotland.

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

‘Private’ spaces???... Reconstructing the ‘living-rooms’ of medieval castles

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

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

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

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

**TH1-08 Abstract 15**

Reconstruction of Neolithic dwellings.

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

Author - Khroulaleva, 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, fime, clay, etc.), hunting, grazing, etc. This also explains the functional differentiation of settlements (settlements of fishermen, hunting camp, etc.) and buildings (household, living and industrial). In addition, domestic production activities (ceramic production, bone and stone processing) proceeded in a living area.

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

Identification and justification of the constructions remains on the archaeological site is a difficult task that requires an interdisciplinary approach. In order to solve this problem, archaeological and ethnographic data is used, as well as the results of the study of specific aspects of the life of ancient people.

In this paper, we present evidence of Neolithic settlements in the north-western region of Russia, which are located in sandy sediments and have a long history.

**TH1-09 Abstract 01**

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

Author - Dr. Dikonomou, Artemio, University of Nottingham, Nottingham, United Kingdom (Presenting author)

Co-author(s) - Henderson, Julian, University of Nottingham, Nottingham, United Kingdom

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

Keywords: Epirus, Greece, Hallenic glass, scientific techniques

Presentation Preference - Oral

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

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

Here we present results from 40 samples that we have analysed using SEM/EDX and LA-ICPMS analysis. The assemblage from which samples were taken consists of fragments of various vessel types (core formed vessels, ribbed bowls, cast bowls, ceremonial 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 minor, major and trace elements between individual samples suggest the use of different types of raw materials and also different production zones. A comparison of these glass chemical compositions with contemporary glass artifacts thus gives new insights into the production and distribution of glass used in Greek region during the Hellenistic period.
An Eye for an Eye Bead: Early Iron Age Glass from Lika, Croatia

The results of an archaeological investigation of Early Iron Age glass beads from Lika, Croatia are presented. A distinct type of ovoid blue bead, decorated with yellow concentric circles, or “eyes”, was widespread on the territory of the lapodians, an Iron Age group inhabiting the area from Central Croatia to the Una river valley in Bosnia and Herzegovina.

So far, lapoidian material culture has been studied in the cultural-historian manner, with the focus predominantly on chronology and typology. Production, technological networks and glass use have received little discussion apart from conjectures that these beads must have been of local production due to their perceived basic production requirements, their abundance in various areas, 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 top but made of true glass.

The two types of glass, and the raw materials used for their production, are very different: the yellow glass is probably imported as ingot, while the cobalt blue possibly indeed locally produced. Furthermore, the archaeological context allows a discussion of the beads’ meaning and use. Their distinct appearance was intentional, possibly in order to reinforce the identities of the lapodian group. Although the lapoceans 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 ascension or achieved status of these women within the lapocean society, which sheds light on the existing female social roles in the Iron Age.

Bibliography:

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

The quantitative analysis focused on the possible difference in raw materials, technological recipes, and craft traditions between the various bead groups dated to Early (Hallstatt) 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.

The Blue from the Sky: Hellenistic monochrome glass in La Tène Europe

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

This paper focuses on two important settlement sites with abundant craft activities in two sub regions of the area: Berching-Pollanten (Bavaria), only about 30 km from Mannching and best known for its iron working evidence, and Bad Nauheim (Hesse), famous for its salt production and an impressive stratigraphical sequence of settlement and production activity several metres in height. Both sites also produced large amounts of glass artefacts, including some raw material and production waste. With more than 430 fragments of bracelets and about 300 beads the glass collection of Berching-Pollanten is the second largest of the region. Archaeometric analysis has been carried out on parts of the collections over several years using LA-ICP-MS and back-scatter electron microscopy. In combination with further typological and technological studies, it is possible to address important questions on chemical composition (different groups of raw material) and fabrication details, as well as on regional supplies and the circulation of objects.

References:

Raw glass to La Tène glass productions: news analytical studies of French collections

Keywords: glass, Hellenistic, La Tène

The Blue from the Sky: Hellenistic monochrome glass in La Tène Europe

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Hairpins and Icepicks: Hellenistic multicolored glass in the later Roman Iron Age

Keywords: glass, Hellenistic, Roman

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TH1-09 Abstract 09
Romano-British glass bracelets: where La Tène Continental technology meets Iron-Age British design
Author - Dr. Isulea, Talliana, Newcastle University, Newcastle upon Tyne, United Kingdom (Presenting author)
Keywords: glass bracelets, Iron Age technique, Roman Britain
Presentation Preference - Oral
The aim of this paper is to bring the Romano-British glass bracelets into the discussion of the Iron Age Continental glass bracelets. The paper suggests that the British glass bracelets were Romanperiod British development of an existing Continental La Tène skill.
Romano-British glass bracelets have primarily been studied from the regional perspective. Earlier research into the distribution and typology of British glass bracelets suggested that British examples stand out in their decorative technique compared to bracelets made on the Continent. The start of the production of the seamless glass annulars in Britain corresponds with the decrease in the circulation of these glass adornments on the Continent. In the late first century BC, the Continental glass bracelets gradually stopped being produced, yet the craft reappeared in Britain, which had no history of glass bracelets’ production prior to the Roman invasion of Britain in AD 43.
The presentation attempts to answer the question as to where the inspiration and skills for the British glass bracelets came from by discussing their production technique.

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

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

TH1-09 Abstract 10
An enigmatic material ‘culture clash’: ‘sealing wax’ red glass in Late Iron Age Britain
Author - Dr. Davis, Mary, National Museum Wales, Cardiff, United Kingdom (Presenting author)
Keywords: Britain, glass, Late Iron Age
Presentation Preference - Oral
This paper will present work carried out on the analysis of Insular Late La Tène and Early Romano-British ‘sealing wax’ red glass. This was used principally as an inlay on high status decorative bronze work, which developed from the earlier La Tène traditions in both Europe and Britain of using opaque red ‘sealing wax’ glass to decorate metal artifacts. 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 use of low lead, low copper red glass produced for Roman mosaics and probably exported as tesserae or rods. However, within Britain the use of ‘sealing wax’ red glass was retained, but 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 ‘symphaisa’ 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 replicated iron as an internal reducing agent, produced a brighter red colour, and acted as a firing agent. However, antimony ores are relatively rare in Britain, and there is no evidence that these were locally sourced. Conversely, antimony was available in the form of lead antimonite, for which there were ancient and extensive trade networks. This was used as a yellow pigment and a colourant in glass. Yellow beads from the Middle and Late Iron Age in Britain were usually coloured using lead antimonite, and tesserae continued to be coloured with this glass well into the Roman-British period.

One hypothesis for the prevalence of this distinctive composition of red glass in Britain is that yellow glass was converted to red by the addition of copper (and lead): metals readily available in Britain. If yellow glass is heated, lead and antimony can volatilize, the subsequent addition of copper (and lead), plus careful cooling in reducing conditions, could result in the production of red glass. This would account for the levels of antimony in Late Iron Age British red glass, for the change in technology, and for the increase in the use of red inlays. Theoretical amounts of copper and lead could 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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Co-author(s): -
Keywords: Hellenistic glass, Mediterranean, Sandwich gold-glass
Presentation Preference: Poster

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

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

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

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

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

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

An important step consisted in the creation of a catalogue, obtaining a clear and reliable morphological classification. The comparative analysis on morphology and decoration revealed a correlation among shapes (mostly hemispherical, ovoid or shallow bowls), technical details and subdivision of the decorated surface.

The decorative motives, mostly geometric and vegetal, were classified. Since they are widespread in the Mediterranean and beyond, they cannot provide significant help in localizing the workshops. Only the two specimens with figurative scene (a sacred shallow bowls), technical details and subdivision of the decorated surface.

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

The 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-economical dynamics, related to the diffusion and consumption of these luxury items, expression of an extremely restricted elite.
Interpreting the Archaeological Record

TH1-10 Abstract 02
Between the forest and the river: hunting and fishing in the Danube Gorges in the Mesolithic
Author - Živaljević, Ivana, Laboratory for Bioarchaeology, Belgrade, Serbia (Presenting author)
Co-author(s) - Boronéant, Adina, Institute of Archaeology “Višnjevac”, Serbian Academy of Science and Arts, Belgrade, Serbia
Co-author(s) - Dimitrijević, Vesna, Laboratory for Bioarchaeology, Belgrade, Serbia
Co-author(s) - Živaljević, Ivana, Laboratory for Bioarchaeology, Belgrade, Serbia
Keywords: Fishing, Hunting, Mesolithic, Danube Gorges
Presentation Preference - Oral

Ever since the discovery of the site of Lepenski Vir, it was recognized that fishing had an important role in the settlement of the Danube Gorges during the Mesolithic. The importance of wild game hunting has also been confirmed by the analyses of animal bones and emphasized ever since the first published archaeozoological reports. The issue of the role of terrestrial vs aquatic resources in the diet has been addressed from the perspective of stable isotope analysis, with somewhat contrasting results. The analyses of stable carbon (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 (834S) 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 (syringids, Wels catfish and acipenserids) in the assemblages from the sites of Lepenski Vir, Vlasic and Padina. Even with methodological biases concerning recovery techniques employed during the old and new excavations, and different areas of the sites they encompassed, we found that fish species composition on the three sites varied to some extent. Given the site locations, their short distance from one another and similar landscape and environmental conditions (vicinity of cataracts and large whirlpools), this propensity towards fishing particular kinds of fish could suggest that the sites functioned as specialized fishing centres, and held different species of fish in special regard.

TH1-10 Abstract 03
Mesolithic boar tusk processing in the Iron Gates: a typological and experimental approach
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Keywords: Mesolithic, Sus scrofa, tusk
Presentation Preference - Oral

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

TH1-10 Abstract 04
Icoana revisited: an archaeozoological perspective
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Co-author(s) - Bonsall, Clive, University of Edinburgh, School of History, Classics and Archaeology, Edinburgh, United Kingdom
Keywords: Mesolithic, archaeozoological remains, food refuse
Presentation Preference - Oral

The first study of the archaeozoological remains from Icoana was made 40 years ago by Alexandra Bolomey. The importance of this settlement led us to re-examine all the faunal material using methods such as slaughtering curves, ageing and sexing, biometry, cut marks, butchery patterns and palaeogenetics. This has resulted in a new interpretation of the local fauna and of Mesolithic hunting activities. All the remains are interpreted as food refuse, with high fragmentation ratios. The list of taxa identified includes molochus (11 species), fishes (1), reptiles (1) and mammals (16). The assemblage is dominated (93.5%) by wild mammals, with over 4300 identifiable specimens. Sus scrofa (wild boar) dominates, followed by Cervus elaphus (red deer) and Capreolus capreolus (roe deer). By weight, deer remains are the most important, followed by wild boar. Other taxa represented are Rana pipiens (common frog), Bos/Bison (auchoe/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, Vlasic and Padina.

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TH1-10 Abstract 05
Operational strategies, animal environment of the Low Povolzhie last hunters and first breeders
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Keywords: cattle breeding, hunting, Low Povolzhie
Presentation Preference - Oral

The Low Povolzhie includes the northwest Caspian Sea region, the Povolzhie steppes and the semi-desert Caspian Sea region. Following a period of aridification, a humid period began in this region around 6700 cal BC. Desert conditions were replaced by a more favorable steppe landscape. This allowed a hunting economy to function properly. All sites were located on lake shores, which were a magnet for animals. Onager and saiga antelope were hunted at watering sites in the north Caspian Sea region, onager, saiga antelope, aurochs and tarpan in the steppe Povolzhie, and gazelle in the northwest Caspian Sea region. Red deer, wild boar, wolf, fox and hare were hunted to a lesser extent. Bird bones are rare in the archaeozoological assemblages.

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

There are solitary records of turtles. The only domestic animal was dog. Hunting and fishing took place all year round. Humidity increased further around 5600 cal BC and aurochs and tarpan started to appear in the north Caspian Sea region. But their hunting percentage is low. The number of sites decreased at that time, and the proportion of wild animal bones also decreased. A hunting crisis began to emerge. Hunting of onager and saiga antelope in the Low Povolzhie was decreasing around 5000 cal BC, and hunting tarpan and aurochs strongly decreased. This was due to changes in livestock husbandry. There was a shift from hunting to cattle breeding. Bones of domestic sheep and goats from this period were found on the sites of the Caspian Sea region culture (in the north Caspian Sea region and in the Povolzhie steppes). According to the Khvalynsk culture materials (4700-4500 cal BC), hunting of aurochs and tarpan 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 Povolzhie. These tribes hunted, but on a smaller scale. This was not an evolutionary process, but a transformation.

* For the project 33.1195. 2014 K.

TH1-10 Abstract 06
Use of beavers and bone industry in the Late Mesolithic - Early Neolithic site of Zamostje 2
Author - Lozovskaya, Olga, Institute for the History of Material Culture, Russian Academy of Science, St. Petersburg, Russian Federation (Presenting author)
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Co-author(s) - Oral
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Keywords: beaver exploitation, bone industry, Mesolithic
Presentation Preference - Oral

The Late Mesolithic was a period of intensive movement of hunter-gatherer groups across the Caspian Sea region, the Povolzhie steppes and in the northern Caspian Sea region. At the site of Zamostje, which lies in the north Caspian Sea region, a Late Mesolithic settlement was discovered around 6700 cal BC. The site was occupied until around 4700 cal BC. The number of sites in the region around the site of Zamostje decreased after 6500-6000 cal BC. The number of species in the faunal assemblages from the site of Zamostje 2 also decreased. 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 Povolzhie was decreasing around 5000 cal BC, and hunting tarpan and aurochs strongly decreased. This was due to changes in livestock husbandry. There was a shift from hunting to cattle breeding. Bones of domestic sheep and goats from this period were found on the sites of the Caspian Sea region culture (in the north Caspian Sea region and in the Povolzhie steppes). According to the Khvalynsk culture materials (4700-4500 cal BC), hunting of aurochs and tarpan 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 Povolzhie. These tribes hunted, but on a smaller scale. This was not an evolutionary process, but a transformation.

* For the project 33.1195. 2014 K.
Lacustrine settlements of hunter-fishers in the Mesolithic–Early Neolithic of the forest zone of Eastern Russia are part of the particular cultural and stable economic world of “the last hunter-gatherers.” The economy was based on hunting elk, beaver, aquatic and wading birds, as well as intensive activity. The site of Zamostie 2 was located in the centre of a wide lake plain in a former glacial basin. Cyclical fluctuations of the palaeolake and a gradual change of the landscape did not influence subsistence strategies of ancient inhabitants greatly, in spite of the appearance of pottery making technology. Bone hunting always occupied an important place in the subsistence activity of the Zamostie 2 inhabitants. The bone industry includes hundreds of implements made from beaver jaws and incisors, used as woodworking tools, as well as ornaments and pendants. In spite of pronounced changes in cultural traditions over more than 2000 years, the main principles of production, shaping and final use of the tools made from beaver jaws remained the same. This, as well as some other specific types of bone tools, typical of the Upper Volga region, raise the question of how an ecological niche influenced some aspects of human activities and the rational use of natural resources.

TH1-10 Abstract 07

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

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Presentation Preference - Oral

Raw material selection of animal hard tissue is directed by technological, but also cultural factors. The availability of specific skeletal elements, their physical and mechanical properties, as well as cultural attitudes toward a certain animal and its body parts are the main factors in the process of selection. In the Early Neolithic of the Balkan region, osseous raw materials had an important role for crafting everyday tools, but also personal ornaments. In this paper are presented some aspects of the exploitation of osseous materials, in particular raw material acquisition and management. Bones from both domestic and wild animals were used, but antlers, teeth and occasionally, mucus shells. Preferences in the selection of a specific skeletal element of a specific animal for a specific tool type may be observed - for example, the preference for cattle metapodial bones in spoon and projectile point manufacture. 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 not represented, whereas in others, they are almost completely absent. To some extent, this is related to the immediate environment, but also is connected with differences in economic activities and local cultural preferences.

TH1-10 Abstract 08

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

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Keywords: animal domestication, Early Neolithic, pig management

Presentation Preference - Oral

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

Cattle played a dominant role from the very beginning of neolithization in the Central Balkans, unlike in southeastern Europe, where sheep and goat, mostly for environmental reasons, preceded and subsequently kept their key position in animal husbandry. As genetic evidence suggests, cattle was introduced to Europe from its initial centres of domestication in the Near East. However, incidences of local domestication cannot be completely ruled out, and, even more so, hybridization of domestic livestock 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 Velasminca in the Danube Gorges. The processing 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 became a regular part of the animal bone assemblages, but mostly in modest proportions; show that the intensity of hunting was not high. Nevertheless, owing to its cognition to domestic cattle, potential local domestication trials and hybridization, or solely to its impressive appearance, the significant symbolic role of this large bovid, one that is going to endure throughout prehistory, was probably established already at the onset of the Neolithic. In this respect, the sudden and synchronic appearance of aurochs made from aurochs metatarsal bones in the Central Balkans, as well as within the large area stretching from Anatolia to Pannonian plane and Carpathian Mountains is intriguing.

TH1-10 Abstract 10

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

Author - Ritchie, Kenneth, ZBSA, Ikast, Denmark (Presenting author)
Co-author(s) - Ritcey, Kenneth, ZBSA, Ikast, Denmark (Presenting author)

Keywords: Copper Age, fishing, Romania

Presentation Preference - Oral

The Chalcolithic period (5th millennium cal BC) in the area of the Lower Danube River is of particular interest for archaeologists because of evidence of very early metallurgy, incipient social stratification, and (at many sites) a renaissance in the exploitation of wild animals in the subsistence economy (although domesticated animals continue to be important). Since 2002, excavations at the site near Pietrele, Romania (on the floodplain of the Danube River) have produced abundant evidence of the exploitation of fish and other aquatic animals both in the form of faunal remains and some of the technologies used to procure them. Although examples of very large catfish and cyprinids are common in the assemblage, wet sieving of soil samples has also revealed the presence of numerous bones from very small fishes - indicating a very intensive exploitation of aquatic resources by the site’s occupants. Understanding the fishery is essential to understanding how the settlement was provisioned and to questioning why wild resources once again became so important at some locations during the Copper Age.
TH1-11 Abstract 01

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

Saturday, 3 September 2016, 09:00-18:30
Faculty of Philology, Room 118
Author: Kalmring, Sven, Centre for Baltic and Scandinavian Archaeology, Schleswig, Germany
Co-author(s): Thy, Dries, Free University of Brussels, Brussels, Belgium
Co-author(s): Fleming, Robin, Boston College, Chestnut Hill, United States of America
Co-author(s): Van Oosten, Roos, Leiden University, Amsterdam, Netherlands
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Keywords: early medieval, urbanisation

Workshop

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

Archaeologically, this misconception is often predominate based on the mid-phase of an urban development, which has been taken as representative for the site as a whole. Being covered by metres of cultural layers, a search for these settlements’ spatially limited roots can literary turn into a quest for a needle in a haystack. The latest Early Medieval developments on the other hand are often either largely disturbed in the plow layers or strongly affected by the subsequent High Medieval settlement activities, including masonry construction and cellars. This session, therefore, seeks specifically to address the inconspicuous phases of urban development at both their inception phases and up through the latest Early Medieval structures on these sites.

Papers in the session will address methodological problems, but more importantly, they will seek to widen our understanding of early urbanism as a complex and utterly dynamic process.

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 significance of the site following the heyday of Carolingian rule, from the second half of the 9th century onwards, has been neglected. Previously, it was thought that the site was abandoned in the latter 9th century, a few decades after a recorded Viking raid in AD 837. However, the re-evaluation of the evidence brought to light the late 9th- to 11th-century material attesting to continued activity. This, in turn, necessitates a renewed assessment of the relationship with the nearby ringfort of Domburg. Previously the fort was thought of as a successor to Walichrum, the refuge of the latter’s inhabitants in the politically unstable post-Carolingian period.

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

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

TH1-11 Abstract 03

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

Author: Wouters, Barbora, Vrije Universiteit Brussel & University of Aberdeen, Brussels, Belgium (Presenting author)
Keywords: early medieval, geoarchaeology, urbanisation

Presentation Preference - Oral

The settlement areas of early medieval towns have in the past been subject to generalising interpretations of their character, layout and function. Changes in the towns’ dynamics over generations of town dwellers have often 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 spit, 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, microRF, 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 Sweden, such as Holsøy and Kaupang, this paper makes a case for a particularistic examination of early medieval towns before wider comparisons are made.

With current geoaarchaeological methods, it is possible to record and interpret separate phases of each town in more detail, to collect finds accordingly and source dating materials more securely. It is also possible to add information about well-dated but unclear phases of the towns, such as in the case of homogeneous deposits, so-called dark earths. The latter often occur precisely at the beginning and perceived end of early medieval towns, making their interpretation a challenging endeavour. Not every layer, however, will be 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.
TH1-11 Abstract 04
Changing Places: a comparative discussion of London and Tours in the Early Medieval Period
Author - Donnelly, Harriet, The University of Sydney, St Leonards, Australia (Presenting author)
Keywords: early medieval, settlement patterns, urbanism
Presentation Preference - Oral

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

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

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

Venice suffers from its own legacies. The materiality of the rising Venice has been generally perceived as sites without time and space, where a fully established myth describes the origin of the city. The Venetian lagoon, in fact, was the place where the noble Romans sought refuge from the barbarian hordes: they had been forced to move to unwelcoming islands among the marshes in order to be free and safe. In the islands the newcomers were able to build a place that, according to the historic narratives, was ideologically and materially comparable to the old Roman sites. The uncoined wood structures of the early medieval houses, for example, have been described as a poor reaction to a sudden, sharp and coherent architectural assessment. On the contrary, the Venetians tried to occupy the more distant islands in order to control both the maritime and the riverine sailing routes. Artisanal productions (glass goblets, parchments, metal crafts), were not subsistence economies; the emporia layout of the sites allowed the circulation of raw materials, techniques and skilled people. Venice was a proto-capitalistic site. A large part of the production (shipyard, timber industry, glass and metal productions, etc.) was made by labour forces with a status very similar to slaves. Probably, also, slaves were one of the most valuable goods, which the Venetians traded with the Islamic world. But slaves, dirty and unwashed, were not the only value goods. In the 9th century, the Venetians established a new type of urbanism that was not based on the standardization of production, but on the variability of forms. Venice was the first city in the world to establish an emporia system of cities forming a network of more than 500 towns and cities. The first simple fortifications in the form of stockades or fortified dwellings in the forest-steppe zone of Trans-Urals are fixed on the materials of the Bronze Age monuments (the II millennium BC). During this period their number was insignificant, the bulk continued to be unfortified villages. The increase in the number of fortified settlements was greater in the transition period from bronze to iron (the 2nd quarter of the 1st millennium BC). They were round-oval in shape with towns up to 4 hectares. There were major 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. In the early Iron Age, the number, height and power of the stockades and their techniques continued to grow. New architectural traditions in the Bronze Age period (the 2nd quarter of the 1st millennium BC) - the middle of the 1st millennium AD - the number of settlements increases. In the forest-steppe zone of Trans-Urals they number more than 100. One-third of excavated settlements are multicultural, from 15 to 20 fortified settlements belonged to carriers of certain traditions. Within this period the dynamics of fortifications are well traced. Fortifications of early stage continue the traditions 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 a specialization of fortified settlements as centers of metalworking, import, export, exchange, cooperation of multicultural population. By the 5-6 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, facades, 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 of this time is 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 06
How and when Venice became Venice. Framing the urban development of a trading town in Italy
Author - Dr. Paizienza, Annamaria, Ca’Foscari University, Venice, Italy (Presenting author)
Keywords: Early Medieval Venice, Trading Town, Urban Identity
Presentation Preference - Oral

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

This in fact is only partially based on historical facts. Although some exceptional elements are observable – such as the local government of the Venetian public assembly (placitum) and the amphibian nature of the settlement – the town has been much overestimated at least as far as the Early Middle Ages is concerned. In the 8th and 9th centuries the apparently novel appearance of Venice on the Italian political scene and the associated emergence of the Venetian public assembly presided over by the ducal has numerous parallels in other parts of Italy where several urban communities, mostly represented by their latters, claimed to act as social and political entities at the same time. In addition, the region around Venice demonstrated its own economic vitality with other towns competing for the control of the Adriatic sea well before the 9th century by engaging in maritime and artisanal activities resembling very similar to those of other settlements in Northern Europe, which archaeologists such as Chris Loveluck and Wil Bowen usually call emporia. Moreover, some recent reconstructions suggest that the rapid growth of Venice in the 8th and 9th centuries can be explained by a conjunction of the contemporary expansion of the Carolingian empire which increased demand for luxury goods with Venice’s special location on the sea near a great river delta (the Po). Although it is likely that the convergence of these two factors had played a major role in the sudden development of the city, it is often forgotten that Venice shared the same ecological position and the same economic system with many other trading towns at least in this earlier period.

These facts pose other challenges to the traditional triumphalist explanations. Why did Venice enjoy a more durable success in a longterm perspective with respect to other towns? What exactly made the difference in the Venetian case? Was it mere coincidence that Venice was the seat of a political authority, the ducal, whereas the other emporia were not? Was the fact that this authority was secular (a ducal) rather than religious (a bishop) as elsewhere the key point?

The paper will seek to answer these questions by analysing the case of Venice in a comparative context and in the light of both archaeological data and written sources, by suggesting for the city, before 1050, typically rather than exceptionally in terms of population size, accumulation of wealth and socio-economic development.

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

A huge archaeological material testifies that the origins of urbanization in Western Siberia should be associated with the formation of ancient fortified settlements - fortresses that appeared on this territory in the Bronze Age and protoocities 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 with towns up to 4 hectares. There were major 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 the tradition in the early Iron Age by the middle of the 1st millennium BC – the middle of the 1st millennium AD the number of settlements increases. In the forest-steppe zone of Trans-Urals they number more than 100. One-third of excavated settlements are multicultural, from 15 to 20 fortified settlements belonged to carriers of certain traditions. Within this period the dynamics of fortification is well traced. Fortifications of early stage continue the traditions 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, export, exchange, cooperation of multicultural population. By the 5-3 centuries BC increasing complexity of fortifications is recorded. The number, height and power of the earthen ramparts with wooden fortifications in the form of the palisades, facades, 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 of this time is 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.
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 Serkal-Belaya Vesta, Pravobreznitsy Tsimlyanskoye gorodishche (urban development), and Semikarakorskoye gorodishche. Numerous urban developments in the adjacent areas of the foreststeppe Podoline (the Don basin valley) and Prilepnochko (the Donets basin valley) dating to the Chasarian epoch and the early medieval period 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 agrarian. Only those sites that are located between the Don and the Volga belonged to the Chasarian Kaganat proper; hence it is these urban developments that can be related to ethnic Chasarians. The last decades saw simultaneous discoveries of several sites of the Chasarian Kaganat in the Volga-Don steppe. In the late 1990s at a kilometer distance from the Pravobreznitsy Tsimlyanskoye gorodishche an urban development was opened, which contained the ruins of fortress walls of white lime stone. One of the stone blocks displayed a tampas of a typically Chasarian shape. The new fortress got the designation Sarkan-3 as a part of the whole agglomeration complex that includes also Sarkan and Pravobreznitsy Tsimlyanskoye urban developments. At the same time a Chasarian epoch lower layer was opened under the layers of the Golden Horde urban center on the site at the village of Samosdelka in the Volga estuary. According to the archaeologists that led the excavations, the geographical position and the character of the constructions of the Samosdelka lower layer suggest that these may be the remnants of the town of Illi. In 2008 followed the opening of the Bashanta gorodishche that contained the ruins of constructions made of white clay shell stone and tile fragments parallel to those found in late Chersonesus on the Crimean peninsula (Jacobson, 1958, 1964). One of the stone blocks also had a tampas cut in it. According to two radiocarbon dates (622-655 at 68.3% and 600-662 at 95.4%) and (672 - 782 at 98.6%), 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 steppe dating to the time of the Chasarian Kaganat. The excavations of 2000-2005 of a number of late medieval urban developments and settlements in the Lower Volga, undertaken by the Khalilov Institute of Archeology of the Tatarstan Academy of Sciences, resulted in discovering cultural layers of the urban epoch. As a number of the recovered finds show, the urban development emerged at the time of the Chasarian Kaganat. Thus, further effort along the lines will contribute to an understanding of early medieval urbanism in the archaology of Europe.
TH1-11 Abstract 10

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

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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 11

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

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TH1-11 Abstract 12

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

Author - Dr. Mägi, Marta, Tallinn University, Tallinn, Estonia (Presenting author)
Co-author(s) - Femke Riddersma, Leiden University, Leiden, Netherlands
Co-author(s) - Jantine Hos, Municipal archaeological service of Delft, Delft, Netherlands
Co-author(s) - Erica van Hees, Leiden University, Leiden, Netherlands
Co-author(s) - Tom Hakbijl, Naturalis, Biodiversity Center, Leiden, Netherlands

Keywords: medieval, trade, urbanization

Presentation Preference - Oral

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

The rural component in the early development of communities like Tallinn and Riga is being re-evaluated in this speech. From the late prehistoric and medieval phases, the layer of crop and pasture is being re-evaluated in these communities. The importance of the rural component in the early development of the two cities is being re-evaluated in these communities.

TH1-11 Abstract 13

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Co-author(s) - Femke Riddersma, Leiden University, Leiden, Netherlands
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TH1-11 Abstract 14

Hot beds? Manure pits in medieval Ackerbürgerstädte

Author - Dr. Van Ostade, 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 of pits has been uncovered. The traditional explanation is that they were used to store manure for agricultural use. This explanation is questionable given that manure requires aerobic conditions and frequent turning for it to be transformed into useful fertilizer. A dung heap rather than a manure pit would be expected. Historical texts dating from the seventeenth and eighteenth centuries describe a method of hot beds that might help explain the manure pits. Horse manure was spread on the bottom, and once fermentation had begun, a layer of soil was spread on the steaming manure, ready to be planted with cucumber, radish and melon. The heat produced by the manure guaranteed that vegetables could be planted months earlier than if a hotbed had not been used, and then also harvested earlier.

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

TH1-11 Abstract 15

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

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

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:


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

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

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

Author - Prof. Sindbæk, Søren, Aarhus University, Højbjerg, Denmark (Presenting author)
Co-author(s) - Neiss, Michael, Uppsala University, Uppsala, Sweden
Co-author(s) - Crox, Sarah, Aarhus University, Højbjerg, Denmark
Keywords: 3D laser scanning, Crafts, Urbanism
Presentation Preference - Oral

This paper argues that the organization of crafts had an imperative significance for the emergence of urban environments in early medieval emporia in Northern Europe. This is demonstrated in a re-assesment of a non-ferrous metal workshop from the eighth century excavated in Ribe, Denmark. 3D laser scans are used to classify previously unidentified mould fragments, and new identifications are offered as a result. The show that the workshop produced a range of items including bits for horse harnesses and copper plater, as well as copper objects such as dishes. The wide range of specialized materials, and thus presumably the skills and expertise of a group of craftsmen. This need for collaboration between specialized artisans was a vital reason why permanent communities of an urban character emerged in ports with privileged economic conditions.

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. This offers the basis of a revised model for the emergence of urbanism in the North Sea region.

TH1-11 Abstract 18
Multimetal smithing - An urban craft in rural settings?

Author - Svensson, Andreas, Lund University, Lund, Sweden (Presenting author)
Keywords: Complex metalworking, Multimetality, Urban package
Presentation Preference - Oral

Multimetal smithing should be defined as the use of more than one metal and/or different metalworking techniques within the same crafts-milieu. This complex metalworking has long been linked to centrality, central places and urbanity in Scandinavia. It has been extensively argued that fine casting and smithing, as well as manufacture utilizing precious metals was exclusively undertaken within urban settings or the “central places” pre-dating these. Furthermore, the presence of complex metal crafting has been used as a driving indicator of the political, social and economic superiority of certain sites, thereby entering the identity as “centred”.

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

The thesis project “From Crucible and onto Anvil” started in 2015 and focuses on sites housing remains of multimetal craftsmanship dating primarily from 500-1000 AD. Within the project a comprehensive survey of sites will be used to evaluate the presence of multimetal craftsmanship in the landscape. Sites in selected target areas will also be subject to intra-site analysis focusing on workshop organisation, production output, metalworking techniques and chronological variances.

The thesis project demonstrates that there are many different ways in which multimetal smithing has been practiced within the multimetal smithing tradition. This project aims to elucidate the complexities of the different metalworking techniques, the different smithing environments and the different smithing traditions that have been registered here. The relatively new context of multimetal smithing is in need of re-assessment and this project aims to provide an understanding of the complexity of multimetal smithing.

TH1-11 Abstract 19
The trajectory of the productive Limfjord Region
AD 600-1100 – Exploring Changing Economic Patterns

Author - Christiansen, Torben Trier, Aarhus University, Århus, Denmark (Presenting author)
Keywords: Metal-detector finds, Regional spatial analysis, Socioeconomic change
Presentation Preference - Oral

Until the western exit sanded up in the early 12th century, the Limfjord (Northern Jutland) had played a central marine infrastructural role. Prior to the closing of the western exit, the fjord offered a comfortable shelter 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 Agerborgs, 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 capric 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 Agerborg and the urban development at Aalborg, and parallel to the growth of the latter, activity seems to increase in most of the neighbouring coastal villages. The general impression left by the archaeological record is one of a remarkable regional productivity during most of the first millennium AD and during the following centuries too. This paper discusses the basis of the socio-economic development of the region and seeks to illuminate the dynamics and the broad regional productivity during the centuries prior to and parallel to the first urban development. Fresh results from spatial and chronological analysis of a large corpus of metal-detector finds challenge previous notions of settlement continuity and emphasize the presence of distinct historical patterns of socioeconomic change.

TH1-11 Abstract 20
No town is an island

Author - PhD Jessen, Mads Dengs, 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. Craft and centrality is also a key element of these newly excavated sites. This aristocratic status was presented as a response to an increase of settled pit-house clusters of more than a 100 units, and placed in the vicinity of two conjoining streams. The different structures mentioned and their internal, topographical distribution as well as architectural features will be incorporated as the main base for a functional interpretation of site and model of the phenomena of site in general.

The topic of commercial control and what type of influence the aristocracy had on the early development on these types of sites will be included. Furthermore, the structural fluctuation of the site at Toftum Nge, and in particular the changes which seems to have taken place during the 7th and 8th century, both at the site in question, but also with regards to the overall development of the Viking Age towns, will be debated in the paper.
TH1-11 Abstract 21
Production and Distribution networks in the Diocese of Tuam, West of Ireland, AD 500-1000
Author - Tighé, John, Trinity College Dublin, The University of Dublin, Castlebar, Co. Mayo, Ireland (Presenting author)
Keywords: Church/Sacral, Economic development, Trade
Presentation Preference - Oral

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

These include sites such as Doonloughan, 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 as can be seen by a move away from the type of economy, widespread in pre-Roman Europe, where an items value was bestowed upon it not because of its intrinsic value, like that of the silver economy which the Vikings helped to develop, but in its cultural value. The silver bracelets found at places like Cushalogurt, Co. Mayo and Portumna, Co. Galway could indicate a much richer trade network through peripheral Ireland, or at least a heavier Viking presence in the area than previously thought.

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

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

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 Pierron, Weber, Verhulst and others.

Today we agree that the take-off of the successful towns can be related to the organisation and stimulus of trade in the context of power in the 10th and 11th centuries. The debate remains however on how to understand the evolution and character of the urban phenomenon before the 10th-11th century. This debate will always tend to suffer from both teleological thinking towards the road of success and the stress on the question of continuity between Roman centres and later towns. The main problem regarding our archaeological understanding of urban life, fabric and functions seems to be that they can have totally different material translations that might not always be recognisable from the modern perspective. The question is therefore 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 Dahlstrøm, 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 - Koval, Vladimir, Institute of archaeology RAS, Moscow, Russian Federation (Presenting author)
Keywords: administrative function, agrarian towns, small towns
Presentation Preference - Oral

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

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

We will present the latest finds from the old town of Oslo. The Folk 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.
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

**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 Boian 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 anatomiocal 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 jewelry pieces.

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

This work was performed through the Partnerships in Priority Areas Program - PN II, developed with the support of MEN - UEFISCEDI, project no. PN-II-PT-PCCA-2013-4-2302.

COSTUME COMPLEX (CLOTHES AND ITS ATTIRE): DEVELOPMENT, RELATIONSHIPS, FORMS AND TECHNOLOGIES IN TIME AND EXPANSE

**TH1-12 Abstract 03**

**Sewed jewelry in Old Russian costume**

**Author** - Prof. Stepanova, Iuliia, Tver State University, Tver, Russia (Presenting author)

**Co-author(s)** - PhD Zhilina, Institute of archaeology RAS, Moscow, Russian Federation

**Keywords**: Burial, hoard, costume, dress, jewelry, cut, ornament

**Presentation Preference** - Oral

The report is devoted to sewed jewelry of an Old Russian costume, they typological characteristics, location and appointment in a dress. Sewed metal jewelry is characteristic both for the noble and for a demotic costume. In a noble costume the plaques of various forms sewed to clothes were widely used. Sometimes the whole sets of plaques of several types formed the ornamental frizies, which were settling down in cervical and breast zone. Similar sets are a part of hoards and come from a number of city and rural burials (for example, the hoard from Tocnok, burials in the Tver Kremlin, in St. Sophia Cathedral of Novgorod, in Desiatinnaia church of Kiev, burial grounds Lopiansky (the Kursk region), Novikin li (the Vologda region, etc.). The archaeological studied stand-up collar, decorated by sets of plaques, are most numerous.

Sets of plaques, apparently, were ripped off from clothes entirely and keep together with the sewed jewelry that excludes need to unpick repeatedly jewelry sets. Materials of hoards and burials, undoubtedly, show a festal costumes, and funeral, which could correspond a lifetime festive costume. Among other sewed jewelry the bells draw attention. There is a series of burials, in which the bells settle down in a certain order. They can be considered as markers of structure or a cut of clothes. The following options of a location of bells are alcoated: on rings on shoulders, symmetric; to the line across a breast; in the zone of a belt; in some horizontal lines in the zone of a skirt. Probably, the linearly located bells ornamented edges or connections of separate parts of clothes. Symmetric jewelry on the shoulders testifies the shoulder clothes, perhaps, like a Russian traditional sarafan. Ways of fasening of the sewed jewelry can be various: by woolen threads on rings; by thin leather laces. It is obvious that the set of metal sewed jewelry made heavier clothes. Besides, there was a need repeatedly to alter jewelry. Materials of hoards and burials, undoubtedly, show a festal costumes, and funeral, which could correspond a lifetime festive costume. Materials of hoards and burials, undoubtedly, show a festal costumes, and funeral, which could correspond a lifetime festive costume. Materials of hoards and burials, undoubtedly, show a festal costumes, and funeral, which could correspond a lifetime festive costume. Materials of hoards and burials, undoubtedly, show a festal costumes, and funeral, which could correspond a lifetime festive costume. Materials of hoards and burials, undoubtedly, show a festal costumes, and funeral, which could correspond a lifetime festive costume. Materials of hoards and burials, undoubtedly, show a festal costumes, and funeral, which could correspond a lifetime festive costume. Materials of hoards and burials, undoubtedly, show a festal costumes, and funeral, which could correspond a lifetime festive costume.
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 - Ratas, J., Freelancer, Tallinn, Estonia
Keywords: medieval costume, funerary dress, 12th century
Presentation Preference - Oral

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

Th1-12 Abstract 06
The variety of female textile funerary equipment from nineteenth century (Biała Rawska - Poland)

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

Th1-12 Abstract 07
Attire of the adornments: the main historical stages:

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

Additional abstracts will be presented within the sessions related to this topic.

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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, circles). Apron at the lower edge of the apron was silk (10 mm wide). Apron was seen silk threads and made of woven silk threads.

Repeated use of that garment confirm the tight seams connecting the individual elements. Costume was completed with long, silk, knitted gloves and shoes with textile uppers. Upper shoes were made of patterned fabrics and decorated with ribbons. Secondary garment’s woman’s garment consisted of a silk dress with a complicated cut and numerous hand-adornments. This 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 the eight at the left and right rear portion (also constituting its mirror image).The skirt consists of 7 elements: two located on the left front, two on the right front, and a single central rear portion considerably elongated. Left side is a mirror image of the right side. Fabric used to sew a dress has an area approximately 5 square meters. The head of the dead woman was laid on a pillow with a silk pillowcase. Pillowcase was made from a single piece of fabric (front and rear portion are of the same shape), but in the course of many years, the bottom portion has been destroyed, so archaeologists recorded two separate components. Pillow shape is similar to a quadrilateral with rounded corners. The maximum height is 470 mm, the maximum width is 510 mm. Around the edges either the front or rear portion is silk ribbon. The band is now a dark brown color. In addition, between the edges with the ribbons was seen decorative fil. 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, places, type of additives and manufacturing technology used fabrics.

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The 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 had to fasten the two ends of a shirt collar together below the neck, or to fasten a cloak. As regards the function of any given specimen, our guess depends primarily on its size, which has been further corroborated by an experiment recently carried out in Croatia.

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

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

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

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

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

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

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

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At the basis of ethnographical 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 08

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

Author - PhD Stapanovoiocăne, Daia, PI Vita Antiqua, Vîltuș, Lithuania (Presenting author)

Keywords: construction, costume, jewelry

Abstract: An approach to the interpretation of jewelry in the Roman Empire, as an expression of the dead ascribed to the living space, the so-called “closing objects” or can be ambivalent? Of a group? Of an elite? Of the other, non-elite? Of the dead? Of the living? Of the image of the buried person? Of the image as a reliable source for such debates. But there are epochs when we do not have cemeteries, at least known ones, and there is a long debate of interpreting the archaeological discoveries from cemeteries, especially, as a suggesting (sometime as a revealing) of the costume of certain community/group/ethnic. Discoveries from settlement where never taken into consideration as a reliable source for such debates. But there are epochs when we do not have cemeteries, archaeological excavations prefer excavating the cemeteries. Such a situation is in Lower Danube region in the 6th-10th centuries. So this is a good situation to a wider kind of questions relating the costume. Costume of a person? Of a group? Of all of them? Of the other, non-elite? Of the dead? Of the living? Of the image of the buried person? Of the image of the family? How can we interpret the very same object discovered both in a settlement and in a cemetery from those questions point of view? Is it an expression of the dead ascribed to the living space, the so-called “closing objects” or can be ambivalent? We intend to provoke some answers and more debates based on the discovered material and not only, dated in the time frame of second half of the 1st Millennium A.D., a region and epoch of dramatical changes in the hole Europe.

TH1-12 Abstract 09

Costume of deads or costume of livings?

Author - Dr. Ciupercă, Bogdan Ioșif, History and Archaeology Prahova County Museum, Ploiești, Romania

Co-author(s) - Dr. Magureanu, A., Institute of Archaeology Vasile Parvan, Bucharest, Romania (Presenting author)

Keywords: early middle age, from object to costume, social meanings

Presentation Preference - Oral

There is a long debate of interpreting the archaeological discoveries from cemeteries, especially, as a suggesting (sometime as a certitude) of the costume of certain community/group/ethnic. Discoveries from settlement where never taking into consideration as a reliable source for such debate. But there are epochs when we do not have cemeteries, archaeological excavations prefer excavating the cemeteries. Such a situation is in Lower Danube region in the 6th-10th centuries. So this is a good situation to a wider kind of questions relating the costume. Costume of a person? Of a group? Of all of them? Of the other, non-elite? Of the dead? Or the living? Or the image of the buried person? Or the image of the family? How can we interpret the very same object discovered both in a settlement and in a cemetery from those questions point of view? Is it an expression of the dead ascribed to the living space, the so-called “closing objects”? Or can be ambivalent? We intend to provoke some answers and more debates based on the discovered material and not only, dated in the time frame of second half of the 1st Millennium A.D., a region and epoch of dramatically changes in the hole Europe.

TH1-12 Abstract 10

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

Author - MA Mech, Anna, University of Warsaw, Warszawa, Poland (Presenting author)

Keywords: jewellery, Roman Africa, Roman mosaic

Presentation Preference - Oral

At the beginning of 2nd century AD a special form of art appeared in Roman Africa - figural mosaics. They depicted both mythological scenes and everyday life and were displayed in public places and private estates of influential landlords. Among these works of arts, those with representations of landlords, their wives and workers draw particular attention. The hierarchy of African provincial population between the end of 2nd and the beginning of 6th century AD is clearly visible on these mosaics. Moreover, they are very important documents of everyday life of different social groups in Roman Africa.

The aim of this paper is to analyze the representation of jewellery on mosaics from Roman Africa. Through comparing them to artefacts found in the area of Roman Empire, it is possible to observe traditions in Roman jewellery and changes happening over the years, as well as discover local trends and their relation to Empire-wide patterns. The richness of landlords and their wives is emphasized by clothes and jewellery which they wear, adorning to Imperial and even divine prototypes, so it is possible to notice a clear relationship between forms of dress and the position within social order. Sometimes those traditions reached way farther back in time than the existence of the Roman Empire, for example the representations of chaussures for jewellery (xyylon) which are emblazoned symbolically already on Classical Greek grave-stones.

TH1-12 Abstract 11

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

Author - PhD Barvenava, Hanna, National Academy of Sciences of Belarussia, Minsk, Belarus (Presenting author)

Keywords: complex, costume, Zupan

Presentation Preference - Oral

Zupan - one of the oldest components of the costume wearing by the elite of the Belarussian society. From the 13 and the beginning of the sixteenth century Zupan was a component of the military costume, was functional, warm, made of woolen fabrics and quilted. Over three hundred years from the end of the XVI and to XVIII century Zupan became an essential element of the Belarussian gentry culture. During the Renaissance Zupan has evolved from military clothing to the main component of ceremonial Belarussian dress. Zupan began to sew from precious silk, velvet tissues, using a trim and gilded buttons. Such a rich clothes acquired status significance. During this period suit with the Zupan has become a unique distinctive artistic phenomenon, the hallmark of noblemen, manifestation of their political/elite.

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

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

TH1-12 Abstract 12

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

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

Keywords: child clothes, copy, reconstruction

Presentation Preference - Oral

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

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

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

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

According to the anthropological remains and the presence of decorations is determined that 9 adult individuals are women. Remnants of headwear found in 5 of them and in one burial of girl 8-10 years. Women were buried wearing head coverings 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 III – IV cc. In IV-V cc. they have proliferated and are becoming an indispensable part of the corollas and occasionally necklaces from the population of Riazan-Oka culture. T. Kravchenko believed that the head corollas put on the top of the textile shawls, which were a mandatory part of women's headdress. T. Kravchenko believed that the head corollas put on the top of the textile shawls, which were a mandatory part of women's headdress.

Two costume assemblages from the Dnieper region:

TH1-12 Abstract 15

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

Author - Dr. Rodrikova, 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. Some only 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 phenomenon 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 enamelized ornaments is mostly dated to the second half of the II – III c. AD. In the Dnieper region such items are connected with Late Zaporizhian and Kiev cultures which are considered as Proto-Slavonic by the majority of modern scholars. The area of enamelized 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 enamelized 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) 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 Martyroika hoard”. It belonged to bearers of Kotochin and Pen'kovka cultures that are considered to be the part of the eastern Slavs. Martyroika-type ornaments come also from several nomadic burials. Today there are two main hypotheses explaining the fact that the same attire was used by different ethnic groups of population. According to the first, this assemblage marked the formation in the Dnieper region of a new social identity and manifested the belonging of its owners to a certain socio-political structure. According to the second, it reflected the emergence of professional community of jewelers, whose production determined the local fashion. Combining both hypotheses, we can assume that joint activities of several jewellry 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 enamelized ornaments and the Martyroika-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 mediatisation-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 (Xinjiang) and Dunhu (Gansu). Because of its technical features (weft-faced compound tabby) is obvious that they made in Chinese workshops. Some components of the motive depicted on these textiles are pure Sasanian (animals decorated with flying ribbons, pearls medals), but after analysis of the Chinese weaving, I assume that other aspects had been rooted in Chinese tradition (for example anathetic position). These two schools of weaving were under influences of each other especially because of Sogdian trade activity on the Silk Road. This Sasanian-Chinese convention was introduced into Central Asia in 8th century (especially to Sogdia), and then was adapted in Muslim and European art.

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

Author - Mg. hist. Santa, Jansone, University of Latvia, Riga, Latvia (Presenting author)
Keywords: archaeology, dress, Scandinavia
Presentation Preference - Oral
The dress has an important place in any research about people from particular time period and location, as it holds a lot of information about its wearer. In historic and ethnographic literature dresses have long been recognized as an indicator of group affinity. To provide an overview of the dress worn by ancient people, it is necessary to use available knowledge from burials, literature, and images to draw the possible look of the well-off Grobin woman in the 7th–8th century. Unfortunately, during this period, mainly cremation burials are used for women, thus adding to the difficulty of reconstructing such dresses. Some later evidences from Sweden and Denmark are used, although with limitations in the process also local evidence to Scandinavian fashion has been detected and further analyzed, thus trying to determine how far one has influenced the other. It must be noted that this is only hypothetic version lacking definitive proof in form of actual archaeological finds, although backed by strong supporting evidence.

TH1-12 Abstract 18
Formation of Jewelry types in Balto-Slavic border zone in the 12-13 centuries (Based on settlement Maskovichi)
Author - PhD Varatinikova, Aksana, National Academy of Sciences of Belarus, Minsk, Belarus (Presenting author)
Keywords: costume, decorations, medieval
Presentation Preference - Oral
Exposure collections of famous archaeologists Ludmila Duchits and George Shytovskaya in the Department of museum ancient Belarusian culture emphasizes the aesthetics of medieval clothing. Group objects (more than 100 units) with mounds of Polotsk land frontier emphasizes ethnic aspects of development early Middle ages (suspensions types, beads). On a material settlement Maskavichy during the XII-XIII centuries is clearly the organization of agricultural and solar symbols in stable circuit (cosmographic images of the horse, crescent). They have evolved and entrenched in artisan products XIII-XIV century. Border arts allows materials to demonstrate a certain stage of coexistence of eastern European tribes, exposure to stress by means of a multithematic features of the northern land of Polotsk culture. Rings and brooches with Maskavichy, as the embodiment of motion, equally characteristic aesthetics Baltic or Slavic dress. They show a wide existence of Slavic ideas in this habitat. Museums show and attribute complementary archaeological items and actualizing artefacts from Belarusians.

TH1-12 Abstract 19
Jewellery workshop in the ancient Smolensk
Author - Murenzeva, Tatiana, The Institute of archaeology, Buturlinovka, Russian Federation (Presenting author)
Keywords: Archaeological excavations, Jewellery workshop, Medieval city
Presentation Preference - Oral
The report focuses on the work of the Smolensk archaeological expedition undertaken in the summer of 2015. The purpose was to determine the time development of the area in ancient period. A pit filled with waste jewellery production middle – 2nd half XI century was found. In the fill of the pit contained many fragments of smelting crucibles, and also some almost entire instances. In addition, were found metal objects associated with jewellery production. The report provides a description and analysis of these findings. All these findings, the mass and concentration in the small hole indicate the presence nearby of areas with ancient jewellery manufacturing. These findings allow us to make important conclusions and to supplement information about the city’s history.

TH1-12 Abstract 20
Andronovo Costume: Headgear and Ritual
Author - Senior Fellow Usmanova, Emna, Saryarka Archaeological Institute, Reserve Park “Ulytau”, Karaganda, Kazakhstan (Presenting author)
Keywords: Anthropological, Andronovo culture, Headdress
Presentation Preference - Poster
Female’s costume attributes of Andronovo culture consist of jewelry, woven fabrics fragments and leather, mainly belonging to the head decorations. Andronovo community is assembling of steppe cultures of Inner Asia belonging to the Bronze Age dated to 2500 – 1300 BCE. Thus far, approximately 30 burial sites have been investigated that contained preserved remains of female’s headdresses (Ural-Kazakhstan zone). Two types of head adornments have been identified: headgears with and without hanging ornaments. A headdress constituted the main part of the costume, which is represented by the marked top of a head as a place for the concentration of a vital force. The headdress usually points toward the age, social status of the deceased. A headgear with the missing elements belonged to girls under 10 years old, while richly decorated headdress belonged to individuals of the fertility period of over 15 years old. Headdresses have been found in the following positions: detached head, re-deposited backbones, complete backbone. Some of the 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.
TH1-12 Abstract 24
Burying parishioners at Köyliö, Finland – Aspects on attire and burial habits
Author - Doc. Lipikin, Sanna, University of Oulu, Oulu, Finland (Presenting author)
Co-author(s) - Kallio, S., University of Oulu, Oulu, Finland
Abstract
The excavations of the 1752 wooden church of Köyliö rest in an area that has been used as a burial ground for about 500 years. The site has been used as a burial ground for a number of centuries, and the results of this study will be used to interpret these burials.

During extensive fieldwork of 2013-2014 more than 750 graves were excavated and thoroughly documented in Gamlestaden, surrounding the burial of a relative were controlled through various beliefs and laws, which will be used to interpret these burials.

During excavation of a buried individual an excavating archaeologist ceased digging when traces of leather were discovered and aspacted 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 microclimate beneath the floor resulted in exceptional preservation levels for both human remains and their accompanying textiles. This is a rare occurrence in Finnish church studies, as textile materials require unique and often extreme environments for preservation.

The funeral attire at Köyliö represents both social and symbolic aspects, contrasting the life and death of these individuals. The 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.

TH1-12 Abstract 25
Archaeology and conservation intertwined:
A leather jackets’ journey through conservation
Author - Conservator Gainsford, Sara, Studio Västsvensk Konservering, 41502 Göteborg, Sweden (Presenting author)
Co-author(s) - Lott, Benjamin, Studio Västsvensk Konservering, 41502 Göteborg, Sweden
Abstract
Keywords:
- Early modern
- Textiles and accessories

Presentation Preference - Poster

Burying deceased parishioners beneath the wooden church floor was a common practice for approximately 50 years at the church of Köyliö, built in 1752. Due to church renovations during the summer of 2015, a number of burials were surveyed and excavated as part of a salvage effort due to the risk posed to the remains, with an unknown number of burials remaining in situ.

The dry and well-ventilated microclimate 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.

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In the period from the late 5th to the early 8th century, which was marked by political, cultural, social and economic changes, funeral communities between northern Gaul and Panonia buried their dead in large cemeteries (‘Reihengräberfelder’). The complex tombs and extensive features of the dead in this grave – including jewellery for women, weapons and equipment for men – provide a detailed picture of the burial process into which social and religious aspects blend. The burial ground of Rommerskirchen-Eckum, one of the few fully excavated row cemeteries in northern Rhineland, belongs in this context. On the basis of numerous soil and skeletons and their careful excavation in the last 20 years, and the workshops in the Landesmuseum Bonn, detailed observations on exact situation of finds and find complexes, and their macrostratigraphy are possible. The exchange with conservator and textiles analyst provides an important contribution to the overall archaeological evaluation of costume complexes in this doctoral thesis.

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

This is also reflected in the late grave 25 (767089). The young woman wore a fine spinngarnet pattern that was open or slit vertically in the upper body area and closed with two silver press plate fibulae with mask-like heads. The burial also included a gold filigree fibula and a necklace of amethyst, glass and amber beads, silver plate cylinders and disc-shaped gold pendants.

Representative for male graves should be grave 368 with extensive weaponry (sword, scabiaad, shield and spear) and multipart belt fittings. Under the belt the deceased wore a tunic-like garment made of diamond twill, while further textile was found together with feathers (perhaps a lining or feathers scattered loosely).

In both cases the selection by the funeral community of jewellery/weapons, precious materials and fabrics refers to the special social role and display of the corpse and the bereaved. Apart from the relationship of the different costume complexes to each other, this study investigates the standardization or individual composition of the grave goods.
TRADITION AND INNOVATION IN TEXTILE TECHNOLOGY IN BRONZE AGE EUROPE AND THE MEDITERRANEAN

Saturday, 3 September 2016, 09:00-16:00
Faculty of Philosophy, Room 207
Author: Ulanowska, Agata, Polish Academy of Sciences, Łódź, Poland (Presenting author)
Co-author(s): Siennicka, Małgorzata, The Danish National Research Foundation’s Centre for Textile Research
SAXO Int, Copenhagen, Denmark
Keywords: Bronze Age Europe, Bronze Age Mediterranean, textile production
Presentation Preference – Regular session

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

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

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

TH1-13 Abstract 01
Bronze Age wool economy: production, trade, environment, husbandry and society
Author: Dr. Sabatini, Sarena, Gothenburg University, Göteborg, Sweden (Presenting author)
Co-author(s): Bengtbrant, Sophia, Gothenburg University, Göteborg, Sweden
Keywords: sheep-husbandry, society and economy, wool production
Presentation Preference – Oral

This paper aims at discussing the significance of wool production in the European Bronze Age. The focus is on discussing which archaeological and ethnoarchaeological material best is used in order to identify, and interpret 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 aim discussing the cultural, economic and social role of wool production in the above named regions.

TH1-13 Abstract 02
Manufacturing Traditions in Textile Archaeology
Author: Dr. Band-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 9.10.2018 (www.plafbauler2016.de), a key textile find from Pfalz-Ingelheim (CH) has been analysed and reconstructed after. 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.
that spinning with spindle whorls and weaving on the warp-weighted loom were commonly practiced. Plant fibres, particularly linen, seem to have been the main material for the production of cloth and textiles during this period. At some point, most probably during the Early Bronze Age, animal fibres (sheep wool) began to be used in the Aegean on a wider scale. Since hardly any Neolithic and Early Bronze textiles are preserved from the Aegean, we can study textile tools made of stone, bone and clay in order to comprehend technological traditions and innovations in textile production.

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

Fiber crafts are among the oldest technological practices of mankind. Although commonly associated with textile manufacture, the use of warp weighted looms have been characterised as an important component of material culture reflecting processes of innovation and integration, as well as social and economic changes. The use of spindle whorls and loom weights their weights, dimensions and shapes may shed some light on alternations in not only fibre use, but also in various spinning and weaving techniques. In this paper I would like to focus on chosen aspects of textile implements from Early Bronze Age Peloponnesus.

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 attesting to the use of warp weighted looms have been characterised as an important component of material culture reflecting processes of Minoisation on several sites spanning the Greek mainland on the west and the coast of Asia Minor on the east. On the other hand, terracotta spools with longitudinal perforations are implements that are widely distributed on the Middle 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 Chaniâ Baypragma. 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 Kleeblinder-Gauss 2015). Late Middle Bronze Age occupation layers in (Châme Baglararasi/Çeşme Baglararasi) 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 spools 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 operational 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?

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TH1-13 Abstract 10
Technical Innovation in Flax Yarn in the Northwest of the Iberian Peninsula. The Spinning Bowl
Author: Doctoranda Ruiz de Haro, María Irene, Escolle Internacional de Posgrado- Universidad de Granada, Almuñecar, Spain (Presenting author)  
Keywords: innovation, Linum usitatissimum, spinning bowl  
Presentation Preference - Oral

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

TH1-13 Abstract 11
Woolen textiles from the times of Roman influences, the site in Grudna, Poland
Author: PhD Grupa, Malgorzata, Nicolaus Copernicus University in Torun (NCU), Torun, Poland (Presenting author)  
Keywords: import, textile, wool  
Presentation Preference - Oral

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

TH1-13 Abstract 12
Biconical ceramic spindle whorls from Maleva mogila near 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 Middle Bronze Age periods. During the archaeological excavations and finds, 9 whole 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 fat spindle whorls which are used for the processing of hemp. The appearance of biconical spindle whorls depict a change in the prehistoric economy during the Early Bronze Age, through a larger breeding of sheep and goats, showing developments in human society during this period.

TH1-13 Abstract 13
The fabric of Bronze Age society: a pilot study on Bronze Age textile production in Hungary
Author: Dr. Kiss, Viktória, Research Centre for the Humanities, Hungarian Academy of Sciences, Budapest, Hungary (Presenting author)  

Co-author(s) - Pászthóki-Széke, Judit, University of West-Hungary, Hungary  
Co-author(s) - Kalocs, Gabriella, Research Centre for the Humanities, Hungarian Academy of Sciences, Budapest, Hungary  
Co-author(s) - Stevcenovics, Vajk, Research Centre for the Humanities, Hungarian Academy of Sciences, Budapest, Hungary  
Keywords: Bronze Age, Central Europe, textile imprints  
Presentation Preference - Poster

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

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

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

TH1-13 Abstract 14
Bronze Age (1800–500 BC) textile craft in Estonia on the basis of archaeological sources
Author: PhD Rammo, Riina, University of Tartu, Tartu, Estonia (Presenting author)  
Presentation Preference - Poster

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

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

TH1-13 Abstract 15
Hallstatt textiles in Poland. Analysis of textile finds from the bi-ritual cemetery in Świebóć
Author: Mścisławska, Joanna, Polish Academy of Sciences, Łódź, Poland (Presenting author)  
Co-author(s) - Antosik, Łukasz, IAE PAN, Łódź, Poland  
Keywords: bi-ritual cemetery, Hallstatt Period, Textiles  
Presentation Preference - Poster

Textile production during the Hallstatt period was an 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 Silesia and voivodeship. Among preserved fragments of organic finds we were able to distinguish the clothes remains and the elements of accessories. The best preserved and well studied textile remains come from the cemetery in Świebóć, Gliwice district. The locality was accidentally discovered in 1930s, but regular excavations started 30 years later. As a result of the archaeological work, 576 crematory urns and skeletal graves were explored, which provided a rich set of materials. Grave goods are local products, as well as imports from the regions of the South and West Europe. 63 graves contained remains of textiles. Most survived fabrics adhere to metal outfits. In addition, research encountered woven tapes remains, braided ribbons, threads and strings.

Material acquired from the cemetery in Świebóć is the largest textile collection from Hallstatt period, discovered in Poland. It waited at museum warehouse until 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.
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 single handle, circular suspension and sometimes also the details of ornamentation. Combs images were placed on the central parts of the urn, on its upper or lower part. Among the researchers any ideas of several vertical lines are interpreted as combs. In this poster we 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.
TH1-14 Abstract 03
Little Bodies at Work: Child growth, development and children's ability to perform work

Author: Dr. Lorentz, Kini, The Cyprus Institute, Nicosia, Cyprus (Presenting author)
Keywords: child growth, human bioarchaeology, work

Presentation Preference: Oral

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

TH1-14 Abstract 04
Childhood in Pre-Roman central Tyrrhenian Italy

Author: Doc. Lipkin, Sanna, University of Oulu, Oulu, Finland (Presenting author)
Keywords: burials of children, nurture and education, play and textile work

Presentation Preference: Oral

Researching children's daily life in Pre-Roman central Tyrrhenian Italy is challenging, as there is minimal archaeological material indicating the presence of children in settlement contexts. The existing evidence on children consists mostly of infant tombs dated between the final Bronze Age and Archaic period. Considering the high child mortality rate, the amount of child burials at necropolises is very low, and the burials of the youngest children (less than four years of age) are mostly missing. However, in Latium and Rome, many infants and fetuses have been found buried at settlement sites. Current research implies that different burial practices may be regarded to have represented different stages of human development children were considered to have, and thus the funerary material offers an ideal data to explore the status of children in Pre-Roman Etruria, Latium and Rome. This paper will examine, the birth and death, nurture, play and education as well as everyday tasks of children. Even though funerary materials primarily indicate perception of death, it is also possible to extrapolate an individual's roles in everyday life. For instance, textile work was a duty of girls by the latest as juveniles, but both archaeological and ethnographical data suggest that even small children learned manufacturing technologies, perhaps through play. Funerary data proves that even small infants had been bestowed important status within their families, and their entouragement was already in process prior to their death. Socialization through gender roles is also visible through examination of funerary attire.

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

Author: Zupanek, Bernadka, 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 dataset 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, crepundia and nails, connected with mors immatura.

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

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

Presentation Preference: Oral

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

TH1-14 Abstract 07
Weapony in child burials: work, play or a symbol.

Study cases from Latvia's Iron Age cemeteries

Author: - Vilka, Aija, SIA “Arheoloģiskā izpēte” (Archaeological Research Ltd.), Aluksne, Latvia (Presenting author)
Presentation Preference: Oral

Weapony (e.g. spears, one sided swords, axes) are occasional findings within child (usually boys) burials in the Iron Age (study cases will mostly focus on the Middle and Late Iron Age, i.e. 5th - 12th century) cemeteries in Latvia. These artefacts can be found within burials of different ages, children starting with a 1-2-years-old. So how we can 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 “burial as a song”, 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.
TH1-14 Abstract 09

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

Author - Dr. Castaño, Nuria, Université Paris IU-Panthéon Sorbonne, Nanterre, France (Presenting author)
Co-author(s) - Castaño, Nuria, Université Paris IU-Panthéon Sorbonne, Nanterre, France (Presenting author)
Co-author(s) - Consuegra, Susana, Institute of History-CSIC, Madrid, Spain

Keywords: Casa Montero, learning, Neolithic mining

Presentation Preference - Oral

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

TH1-14 Abstract 10

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

Author - Dr. Dipal, Athi, Hellenic Open University, Athens, Greece (Presenting author)

Keywords: animals, pets, toys, gifts

Presentation Preference - Oral

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

TH1-14 Abstract 11

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

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

Keywords: artefacts, Roman, social identity

Presentation Preference - Oral

The Roman life course is a well-studied topic, but there have been few considerations of how artefact evidence can contribute to our understanding of childhood in the Roman period. Yet objects made specifically for children define and conceptualize childhood as a separate category to adulthood, and embody this through social practices involving material culture. This paper takes one object category, finger-rings, and investigates the evidence that relates to the use of rings by children. By examining grave contexts containing finger-rings, we can establish the normal size ranges that existed for rings worn by children and adults. A much larger sample of rings can then be examined, identifying rings in sizes that are likely to have been worn by children, and documenting any decorative motifs on the bezel of the ring that were particularly associated with them. We can show that decorative motifs that were much used for children in the Roman period include the phallic symbol, palm branch, depictions of the Egyptian god Serapis, and other motifs such as theatre masks. Many of these themes chosen for children’s rings reflect themes of beneficence 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 suits 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. This paper suggests that a methodology which can be fruitfully applied in many periods to reveal more about how childhood was conceptualised in the past.

TH1-14 Abstract 12

The children of medieval and post medieval Copenhagen

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

Keywords: burials, child labour, children

Presentation Preference - Oral

Children are often quite invisible in the archaeological material for many reasons - the (few) toys have disappeared or can no longer be identified; children’s bones are more fragile and perish faster than those from adults from burial sites. With the aim to give nuance to the lives of children in past society, this paper will present the evidence of children living in historical Copenhagen through different unique findings of artefacts, a cemetery and an example of child labour. The Metro excavations in the city centre have given a lot of new evidence of the presence of children in Copenhagen. Well preserved finds of toys made of organic materials were excavated from the moats of the fortification surrounding the city. These unique toys reflect play and fun, but also some of them must have been a means of preparing the children for adult lives. Along the churchyard walls of the former church of a monastery were used to establish the orphanage. It was financed by donations of the citizenry and had to make a life on their own: most of the boys as apprentice of a craftsman and the girls as maids. Nevertheless the orphanage were below horizon circumstances.

TH1-14 Abstract 13

Work and play at the early modern orphanage in Altenburg

Author - Schäfer, Kathrin, University of Bamberg, Bamberg, Germany (Presenting author)

Keywords: History of Childhood, Orphanage, Post-Medieval Archaeology

Presentation Preference - Oral

In context 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 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 housework, like cleaning and fixing the clothes and the boys would help the Orphan Father with gardening, knife grinding and repairs. When they were around fourteen years old the orphans were forced out of the institution and had to make a life on their own: most of the boys as apprentice of a craftsman and the girls as maids. Nevertheless the everyday life of an orphan not only consisted of work. In the mornings the children attended school and they also found some time for leisure and play: the finds of some toys from the orphanage can prove this.
THI-14 Abstract 14

Slave and servant children in Archaic and Classical Athenian art

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

Keywords: servants, slave

Presentation Preference - Poster

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

THI-14 Abstract 15

Children and environmental stress in Wielbarkian societies

Author: Dr. Ołyniec-Osianowska, Marta, University of Szczecin, Szczecin, Poland (Presenting author)

Co-author(s): Fatmir, Ratar, 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.

THI-14 Abstract 16

Glass ornaments from a girl’s grave in Bytom Odrzanski

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

Keywords: children, glass, ornaments

Presentation Preference - Poster

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

THI-14 Abstract 17

Children in Vilnius potteries

Author: Dr. Blaziejcius, 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 dependant on the child’s age.

THI-14 Abstract 18

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

Author: Campbell, Stuart, National Museums Scotland, Edinburgh, United Kingdom (Presenting author)

Keywords: Archaeology of Childhood

Presentation Preference - Poster

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

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

Richly furnished cemeteries in Europe have long been the focus of scholarly attention, providing one of the most abundant sources of information on pre-Christian societies. The majority of analyses have focused on dating and typologising grave goods and burial types. Western European scholarship has viewed burials as actively constructed rather than passively reflecting culture, rejecting direct correlations between religion, ethnicity and burial practices. Prevailing interpretations of cemeteries regard them as places for the disposal of the dead and public forums for social competition. In recent years there has been a resurgence of interest in the religious significance of burial rites, with funerals considered as forms of performance linked to the expression of cosmological narratives, and the cemetery serving as a ‘theatre’. This has continued to define the study of burials in eastern European scholarship, where there has been more acceptance of pre-Christian cemeteries as foils for a ‘cult of the dead’.

The aim of this session is to revisit the links between religion, cult praxis and the use of cemeteries in contrasting geographic and temporal contexts, in order to promote a new understanding of the complexity of these sites, through the application of multi-proxy methodologies. Papers are welcome on any region and relevant time period, including the use of multi-faith cemeteries.

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

Author - Wenn, Camilla Cecilie, Museum of Cultural History, University of Oslo, Oslo, Norway (Presenting author)
Keywords: grave, rituals, Viking Age
Presentation Preference - Oral

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

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

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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 practised in the early Anglo-Saxon period. nuanced variations in positional preferences within and between cemeteries suggest that body representation was closely linked with the conception and expression of individual and group identities, locally as well as regionally. Addressing the role of the body in early Anglo-Saxon death rituals, this paper explores the belief and practice underlying the organisation of bodies in graves and attempts to unfold the hidden narratives behind the early medieval corpse.

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

Author - Dr. Oras, Ester, University of Tartu, Tartu, Estonia (Presenting author)
Co-author(s) - Jonuk, Tõnno, Estonian Literary Museum, Tartu, Estonia
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Keywords: grave, ritual, Christian, Pagan
Presentation Preference - Oral

A Late Iron Age cemetery with 21 graves in Kukruse, NE Estonia, will be used as a starting point to discuss cult practices relating to burials in the Christian and pagan contexts. The focus will be on grave goods, particularly eggs, which appear in a variety of positions and contexts across the cemetery. The eggs are interpreted as significant to the burial practice, serving as a proxy for the afterlife and the dead's status. The paper will explore the significance of these eggs in the context of the cemetery, comparing them with other grave goods and contextualising them within the broader region of Estonia.

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.
Were cenotaphs built at Milzi kapis? Analysis of barrows discovered in the Bajorai cemetery (SE Lithuania)

In 1913 Stefan Krukowski excavated 22 barrows at Wysokie site (Vilkiautinis, dis. Varėnos) in Lithuania. According to the findings, at least six barrows without any burial or artifacts inside them. Despite this, the barrows contained evidence of human remains. The egg from the second inhumation was found at the foot of the woman, next to a ceramic vessel. Both eggs have been identified as chicken eggs with ZooMS and microscopic analysis.

The most different finding circumstances of eggs in two barrows at Kukrukas raise several questions. What is the meaning of an egg in burial rituals for this period? Why was the same object curated so differently and how are we to interpret this situation? Can we talk about pagan or Christian connotations, perhaps even simultaneously?

What do these egg finds tell us about the religious identity of this society?

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 of sacredness of burial places, the concept of the afterlife, and afterlife images played in the topography of burials.

The early Medieval Lithuanian cremation cemeteries are the case in this study. In the middle of the 13th century, the Grand Duchy of Lithuania was formed as a Christian state, however, Christianity was abandoned, and until the final conversion to Christianity in 1387, Lithuania existed as the only Medieval pagan state in all Christian Europe. In 1374, Lithuania became an independent Principality, and the Grand Duchy of Lithuania emerged. In 1413, the Grand Duchy of Lithuania merged with the Kingdom of Poland, and the dual state of the Polish-Lithuanian Commonwealth was formed.

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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 14th century. This was connected with the increasing threat in these times which forced the Lithuanian warriors to head out to war and also was one of the reasons of the fall of the Roman Empire.

In 2006 Klaipėda University in collaboration with Kaišiadorys museum started investigation of the Bajorai cemetery (Elektrėnai, dis. Klaipėda). The barrows with numbers: 9, 10, 11 and 15 did not contain any traces of graves and burial equipment.

In 1913 a total of six barrows were excavated at Wysokie site (Vilkiautinis, dis. Varėnos) in Lithuania. According to the findings, at least six barrows without any burial or artifacts inside them. Despite this, 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.

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

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

Archaeology shows that material remains found in the sacred space of cemetery reflect cultural, religious and social diversity. On that basis we can discuss about multi-faceted relationships between groups of humans, their habits and behaviours. Nevertheless, it is generally known that sacrificial objects are only final products of funeral ceremony which is both a rite of passage regarding the dead (von den Driesch 1989) and some kind of identity performance in order to consolidate community (Turren 1989).

On account of that, cemetery as the special space of transgression and communication between the living and the nether world should be perceived also in the context of its social function. The problem is that the Lower Lusatia region, as the area of Luboszyce Culture (Domalski 1979), was the frontier zone of different archaeological units (the Przeworski and Wielbark Cultures, as well as the Elbe cultural circle). Relics from there, for that reason, combine the various features of neighbouring cultures over the time. In facts, burial mounds dated from the middle and later Roman Period (II-II c AD) are difficult to archeological interpretation. For instance, some burrows with remains in cremation site (Homo, Kr. Spree-Neisse) are associated with the Przeworski Culture,because of the warrior equipment inside (Janczar 1990), while others surrounded by stone circle (Luboszyce, Krosno Odrzańskie county) – with the Wielbark Culture, due to lack of weapon and typically female costume elements in graves (Schuster 2011). In terms of cultural anthropology, the ancestor worship as an important element of religion of various barbarian societies (Geisler 1967) seems to be the key to reconstruct and study these ritual actions building new order and establishing social roles on the ground of symbolic ones (Turren 1982). Behaviours like that, because of peculiar cultural diversification in the borderland landscape, may have been resulted in creation of new patterns, including syncretic forms of funeral rites (Domalski 2010) and, perhaps, mythological narrations.

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

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

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

Among these remains of animals, among these is most particular the bones of Haliatus. These finds are interpreted as traces of sacrifices in honor of the deceased or supernatural beings, or as gifts of food, but it cannot be excluded that they are relics of ritual feasts taking place during the funeral ceremony.

At necropolises of the Przeworsk culture zoomorphic figural images, made of clay, were recorded. Artefacts of this category are present mostly in graves of women and children. It should be noted that the most numerous images of animals appear in the inventories of the Przeworsk culture in the second half of the second and in the third century AD, so in the same chronological section, when animal bones are relatively frequent in graves of the population of mentioned unit. It should be added that in that time zoomorphic figurines become more numerous also in other cultural milieu of Barabianum 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.

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

Author - Dr. Nieszpitowska-Wilińska, Barbara, Institute of Archaeology, Maria Curie-Sklodowska University in Lublin, Lublin, Poland (Presenting author)
Co-author(s) - Wiliński, Tadeusz, Institute of Archaeology, Maria Curie-Sklodowska University in Lublin, Lublin, Poland (Presenting author)
Keywords: burial rites, multicultural cemetery, Ułow, SE Poland
Presentation Preference - Oral

Ułow is a small village in Lublin Voivodship (SE Poland) situated in the region of Middle Roztocze. The complex of archaeological sites in the woods of the vicinity of Ułow was found by searches with metal detectors who were looking for military items from the World War II. Among sites recognized during the archaeological excavations, there are two cemeteries dated to the late Roman Period and the Migration Period (sites 3 and 7) and two contemporary settlements (sites 10 and 15), separated from each other by a deep valley of rivulet, now, intermittent. At the same time, it is a border between two zones – saccrum 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, Funnel Beaker and Corded Ware Cultures), as well as the Bronze Age, the early Iron Age (the Trzciniec and Luzkian Culture) and the Middle Ages. Three barrows of the Corded Ware Culture were also discovered and explored. They were closely connected with the arrangement of a cemetery from the Late Roman and early Migration Periods. Many aspects of the burial rites practiced at Ułow in all phases of the site is not an analogy in Polish lands. Therefore, the main question is why the people of so many cultures chose this place. Whether the settlement was associated with convenient geological and geomorphologic conditions or with cultural tradition, or whether it was the random choice.

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

Author - Dr. hab. Karczewski, Maciej, Institute of History and Political Sciences, Białystok, Poland (Presenting author)
Co-author(s) - Karczewski, Malgorzata, The Research Centre of Central and Eastern Europe, Białystok, Poland
Keywords: cremenation cemetery, rituals, Roman and early Migration Periods
Presentation Preference - Oral

The cemetery of the Bogaczewo Culture from the Roman and early Migration Periods in Paprotki Kolonia village, in the Masurian Lakeland, delivered several traces related not only to the cult of the deceased but also to another ritual activities which took placed 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 Qalndaï tribe mentioned by Claudia Ptolemy.

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

Author - PhD Prichystalová, Renáta, 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 regional aggermation of so-called Great Moravian Empire. In its north-eastern suburb Christian church with graveyard around was discovered. From years 2008 to 2012 there were found 152 graves. The various attributes of funeral features were explored there, for example the graves with presence or absence of funeral furnishing: with or without of wooden coffin; of interior stone construction and adjustment of the grave pits, the diversity in the cubage of grave pits or in the orientation of the deceased. The cemetery is dated to the turn of the 9th and 10th centuries. It is a time of the turbulent changes. The so-called Great Moravia was destroyed, the Christian clergy and society disintegrated. The organisation was weakened and 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.) help us to determine this knowledge.
What can the cemeteries from 8th – 10th centuries from Lower Danube region tell us?

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

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

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, for the interest of such special cases where the deceased received noticeable differential treatment is not now forming systematic approach towards them. Recently the theme of deviant burials was reappraised in European archaeology, sometimes creating very heated debate over it. Simultaneously, the increasing finds number of such untypical and strange character attracted significant interest from the media and the wider public on the matter, often turning the topic into academic grey area.

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

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

Aegean burials as liminal performances

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

Death is one of the moments of transition in life. For the living it is important to affect this event through ritual activities and both pre- and post-mortem rituals concerned with the separation from the existing world and 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 gap 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 locus of ritual activity takes place. Special requirements of purity may exist here and a heightened awareness is appropriate, since there is risk of pollution where transition between life and death takes place. The liminal zone is a special and mysterious region, which carries the risks of hidden dangers. The ritual actions of propitiation directed towards the supernatural powers consist of food and blood sacrifice, libations, gifts of non-consumable material objects, prayer and the payment of respect. The present paper brings forward the ritual activities performed at selected Aegean Late Bronze Age cemeteries through the reflection of the material remains and the analysis of the structural components of the tombs.

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

Author: PhD candidate Dudić, 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 Aargolis. Multiple graves were only 14% of total excavated number from the sites of Asine, Argos, Dendra, Lerna, Mycenae, Tyris and Prosymna. The analysis focused on the formal nature of specified graves. Following preferences were provided with the MH III period (beginning of Mycenaean culture). The high growth of multiple burials was visible, the traditional burial areas were used and there were no special cemeteries for the local elites of society. Some of the objects were highlighted within the cemeteries (perimeter walls, stone steles and tumuli). Using of tumuli (Argos) and perimeter walls (Grave Circles at Mycenae) distinguished them also in the local landscapes. Using of the elaborated tomb structures (cist and shaft graves) and deposition of more sophisticated grave offerings was noticeable. It is also clear that for some multiple burials bigger graves were used, specifically created for this practice.

The main topic of paper will be an interpretation of multiple burials phenomenon in cases of tradition and communal identity. It is visible that Early Mycenaean elites were focused on cultivating tradition, but with special individualizing of their own group. It should be emphasized that there was a strong need to practice certain funeral customs – using a common cemetery, the same types of tombs and set of offerings. The posed questions will be about the purpose of adding successive deceased 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 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 movement to separate and designate for some groups of society or family. They emphasized the individual identity and tried to define their origins and place as members of a larger group of society.

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

The Symbolic Meaning of Grave Goods

Author: PhD candidate Valtokhiene, Sarina, Lithuanian Institute of Historical Studies, Vilnius, Lithuania (Presenting author)
Keywords: Grave goods, Interdisciplinary method, Symbolic meaning
Presentation Preference - Oral

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

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

It seems to have been forgotten that funerals are a complex of symbolic actions, which archaeologists can perceive through material remains. To understand symbolic meaning of grave goods we can use interdisciplinary method. This gives a chance to see diverse view of artifacts. The main aim of this paper is to reveal the symbolic meaning of grave goods, using archaeology, anthropology, history and Lithuanian linguistics. To illustrate, five different artifacts have been chosen: needles, rings, sleigh bells, axes and swords.
TH1-16 Abstract 01

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

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Keywords: exchange, obsidian, sourcing

Presentation Preference - Oral

Starting in the Early Neolithic (ca. 6000 BC) obsidian from four island sources was acquired and distributed over great distances in the Central Mediterranean. In recent years, non-destructive analytical instruments, including portable X-ray fluorescence spectrometers (pXRF), have been used to determine the specific geological sources of thousands of obsidian artefacts from many sites throughout this region. Obsidian from the Aeolian island of Lipari was widely used in Sicily, Malta, peninsular Italy, and as far north as France and across the Adriatic Sea in Croatia. Obsidian from Pantelleria was regularly used on Malta and many sites throughout this region. Obsidian from the Aeolian island of Lipari was widely used in Sicily, Malta, peninsular Italy, and as far north as France and across the Adriatic Sea in Croatia. Obsidian from Pantelleria was regularly used on Malta and many sites throughout this region. Obsidian from Pantelleria was regularly used on Malta and many sites throughout this region. Obsidian from Pantelleria was regularly used on Malta and many sites throughout this region. Obsidian from Pantelleria was regularly used on Malta and many sites throughout this region.

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 were used, as well as varying amounts of Secondary flint. Survey was recently undertaken to record all Upper Bartonian outliers located between the Veše valley and the well-known source of Rominy Lhéry. The aim here was to address a number of issues. Is there a source of Bartonian flint closer than Rominy Lhéry 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 source? Is this the case elsewhere in Michelsberg contexts, for example at Jablines, in the central Paris Basin, or Sprennes in Belgium? Using the results obtained, we tested various models of routes between sites and sources, based on least cost analysis algorithms for return trips. This enabled us not only to identify the possible routes used, but also to calculate more precise distances involved. Different hypotheses were tested, including direct or indirect access, with or without an enclosure controlling either access or distribution. To conclude, the preliminary results are compared with evidence elsewhere of Michelsberg lithic procurement territories.

TH1-16 Abstract 04

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

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

Presentation Preference - Oral

High quality flint nodules (Baltic erratic flint), which are found in abundance on the ground surface and in the larger river and lake valleys in nowadays southern Lithuania were usually used for knapping by the Stone Age people. Furthermore, flint concretions in Lithuania are associated with Upper Cretaceous chalk / chalk marl blocks transported by glaciers and their outwash streams. The blocks of Pre-Quaternary rocks occur quite frequently in the southern and southeastern parts of Lithuania. Till now, the Final Paleolithic flint mining sites and workshops had been discovered at 4 places in south Lithuania. Elenyas, Margonys, Titnas and Būdūs. 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 Pasieński-1 site in eastern Lithuania, where knapped porphyry, quartzite and sandstone material amounted to 15 percent of the total debris from the site. These raw materials were reduced in manner of flint knapping (bipolar core + soft direct percussion + blades and flakes as blanks). At the end of the Mesolithic, the situation changed dramatically and local fisher-hunter communities of northeastern Lithuania made their contacts with people from the Valdai / Upper Volga Region and got access to sources of high-quality reddish flint. A few hundred years later, together with flint debitage, first red nodules the first ceramic / pottery making tradition have reached the Lithuanian territory around 5800 cal. BC. The reddish banded flint was also used but in much less quantity than in earlier times. The lack of high-quality flint raw material is quite visible in the majority of the late Mesolithic-early Neolithic settlements' assemblages from north-east and north Lithuanian, due to sizes of cores, tools and debris which are 3-10 times smaller than usual. Other kinds of rocks used widely for the production of special tools (axes, chisels, grinding stones, etc.), too. Daugava-Dyina river corridor was widely used at the turn of the Neolithic-Brone Age, when the yellow flint was imported from the Valdai / Upper Volga region.

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 raw material were used. Dozens of different raw materials were identified and such diversity led to the creation of a regional raw materials reference collection, now in the Natural History and Science Museum of the University of Porto. Although several varieties of quartz dominate the assemblages, other local high silica content rocks were selected by prehistoric communities such as hydrothermal alterations, opal, jaspers, jyolite, mylonite, granite, and greywacke among others. These had a crucial role in the economy of those human groups. Among all lithologies greywacke represents an important part since it was applied in several uses throughout times. It presents not only decent knapping aptitude but also a good thermal conductivity. With easy access it was used for the production of tools and artefacts structures (hearth, post holes, floors), portable art (engraved slab), 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.

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

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

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

**Presentation Preference** - Oral

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

**Author** - Faragó, Norbert, Eötvös Loránd University, Budapest, Hungary (Presenting author)
**Keywords** - chipped stones, Late Neolithic, raw material

**Presentation Preference** - Oral

Chipped stones played an important role in the sustenance of human life not just in the Palaeolithic, but in the Neolithic period also. The raw material preferences and choices became more indicative as more complex settlements and societies emerged. Chipped stones in different contexts teach us to take into consideration the many aspects of the prehistoric worldview. The case of the Late Neolithic site Polgár-Csoszhalom reflects well these combined phenomena, where two different habitation units (tall and horizontal settlement), two different geographical regions (Central Europe and the Balkans), two different stages of life (youth and adulthood) met and mixed with each other. Although these categories were more plastic and permeable for the prehistoric people, it is worth trying to investigate separately the several situations, where chipped stones played their role. Through these analyses it became clear that, generally, the local raw material is more related to the part of the settlement presumed to be related to daily, while the tall is more oriented toward to distant sources. In other situations the stone itself became a medium and bears a significance. The variation of different raw material is, no matter which the material is made of. In some cases, the raw material choice and the technology used may have been forced by practical reasons, without any other motives behind it.

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

**Author** - Pyżewicz, Katarzyna, Adam Mickiewicz University in Poznań, Poznań, Poland (Presenting author);
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**Keywords** - flint axes, Poland, Final Neolithic

**Presentation Preference** - Oral

The paper presents selected issues related to the manufacture, distribution and function of the Final Neolithic axes in western Poland. The main subject of our study is flint axes associated with the Funnel Beaker Culture, Globular Amphora Culture, and Corded Ware Culture. For the research presented in this paper, we combined raw material analysis with morphometric, morphologic, micro-wear and experimental methods. We carried out studies on the types of raw materials from which the flint axes were made. The data obtained were compared to the sources from local outcrops, and two important centres of axe production associated with the lithics from southwest Poland and “Scandinavian flint”. Based on these results, we created models of chaîne opératoire relating to the production and use of the flint axes made from different types of raw material. Additionally, we investigated the character of the distribution route—whether craftsmen manufactured the flint axes only near to the prehistoric flint mines and their goods were imported to the other territories, or they journeyed as specialists who distributed and repaired the flint axes.

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

**Author** - Asland, 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 chaîne opératoire analysis of the practices involved in direct lithic procurement in the Stone, Bronze and Early Iron Ages in southern Norway. My method is one of contextualisation and comparison of material found at quarries and related workshops and settlement sites, 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.

**Differences in the raw material preferences**

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

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

**Presentation Preference** - Oral

**Text and figures. The multiple uses of Greywacke among northwest Iberian prehistoric groups**

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

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

**Presentation Preference** - Oral

**Abstract**

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 alterations, opal, jaspers, jyolite, mylonite, granite, and greywacke among others. These had a crucial role in the economy of those human groups. Among all lithologies greywacke represents an important part since it was applied in several uses throughout times. It presents not only decent knapping aptitude but also a good thermal conductivity. With easy access it was used for the production of tools and artefacts structures (hearth, post holes, floors), portable art (engraved slab), 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.

**Abstract**

Chipped stones in different contexts teach us to take into consideration the many aspects of the prehistoric worldview. The case of the Late Neolithic site Polgár-Csoszhalom reflects well these combined phenomena, where two different habitation units (tall and horizontal settlement), two different geographical regions (Central Europe and the Balkans), two different stages of life (youth and adulthood) met and mixed with each other. Although these categories were more plastic and permeable for the prehistoric people, it is worth trying to investigate separately the several situations, where chipped stones played their role. Through these analyses it became clear that, generally, the local raw material is more related to the part of the settlement presumed to be related to daily, while the tall is more oriented toward to distant sources. In other situations the stone itself became a medium and bears a significance. The variation of different raw material is, no matter which the material is made of. In some cases, the raw material choice and the technology used may have been forced by practical reasons, without any other motives behind it.
Interpreting the Archaeological Record

TH1-16 Abstract 10

Banded flint from Central Poland – new discoveries, new questions

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Keywords: banded flint, flint mining, remote sensing

Presentation Preference - Oral

Prehistoric banded flint mines were discovered on the northeast margin of the Świętokrzyskie Mountains nearly a hundred years ago. Since then, they have been attracting the attention of several generations of Polish archaeologists. A special place in these studies was taken by a large and well-preserved mining field “Krzemionki”. Intensive research on prehistoric flints exploited during the 20th century was summarized during the VIIth International Flint Symposium. In recent years, one has returned to the research of flint mining using new technical possibilities. Geological survey showed the location of many kilometres of outcrops of banded flint in the southeast margin of the Świętokrzyskie Mountains. However, there is no evidence of its use in prehistoric times. Survey also located sporadic occurrences of secondary accumulations of banded flint in glacial deposits in southern Poland (near Cracow). Airborne Laser Scanning (ALS) make it possible to analyze in detail the entire course of banded flint outcrops from the NE margin of the Świętokrzyskie Mountains. This resulted in the discovery of yet another prehistoric point of exploitation. Also allowed to create detailed maps of all known prehistoric mining sites. These plans revealed a previously unknown method of exploitation and also changed our ideas 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 final Neolithic and Bronze Age.

TH1-16 Abstract 11

Still in Prehistoric Times? The mined flint for production of high quality tools in Dynastic Egypt

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Keywords: Dynastic Period, Egypt, flint

Presentation Preference - Oral

Flint as a material for the production of implements in Egypt was still common during the Bronze Age. It was caused mostly by the difficult access to copper and tin deposits and especially the costs of the production of metal tools. In contrast, sources of flint were easily accessible for everybody. Additionally, products of this raw material had a long durability and a low cost. Flint appeared almost throughout Egypt, but mined flint of better quality, was placed mostly in wards, such as in Ward al-Shukh, Ward Saqur, Ward umm al-Nabbar, and in Western Thebians. Those places attracted the attention of researchers since the end of the 19th century. However, none of them has been comprehensively examined. Only recently research has been resumed. In the area of the wards there are still places of extraction of raw material, lasting its quality, knapping workshops and some temporary workers’ shelters visible at the surface. On the other hand, there are not many traces of knapping workshops on the settlement area in the Dynastic Period. However, a wide spectrum of everyday objects made of flint is known from the territory of Egypt. This paper is concerned with the study of flint assemblages from a number of Egyptian archaeological sites of the Dynastic Period. The observations made on the 30 examples of the Dynastic sites show that the obsidian debitage does not differ from other blade productions made on limnoquartzite or radiolarite and that the knapping apprenticeship has also been detected. Finally, we demonstrate that Kašov can rather be interpreted as a domestic settlement. The obsidian production does not offer much from other blade productions made on limnoquartzite or radiolarite described on other Böks sites. We believe that the blade debitage of the pit at Kašov belongs to a laminar tradition that appeared in the Early Phase of the ELC in eastern Slovakia.

TH1-16 Abstract 12

Obsidian blades debitage at Kašov–Čepegov I (Bükk Culture), Slovakia

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Keywords: Early Neolithic, lithic technology, obsidian

Presentation Preference - Poster

This paper will present the result of a new study of the site of Kašov–Čepegov I in eastern Slovakia. Excavations at Kašov were led jointly by the Cracow and the Nanterre universities during the mid-1980s. Excavations revealed one pit with hundreds of obsidian waste concentrations and associated decorated pottery sherds belonging to the Bükk Culture (Bpnesz 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 chat né operators of obsidian knapping at Kašov is quite an original Neolithic obsidian debitage. This new technology and the kašovicæ is less concentrated in the Bükk plain and more widely distributed. Additionally, the kašov tradition might have been widespread in western Carpathia. The results of our analyses will provide an overview of the obsidian production and trade in eastern Slovakia.
TH1-16 Abstract 15
Local flint pebbles reduction strategies in the settlement of Sârnate
Author - Karina, Marcis, University of Latvia, Riga, Latvia (Presenting author)
Keywords: Latvian, Neolithic; pebble reduction strategies
Presentation Preference - Poster

This study is an analysis of local flint pebbles reduction strategies in the settlement of Sârnate. 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 Sturms and Lūcija Vanina. During excavations in the site, the archaeologists discovered many separate dwellings. Therefore, in this site it is possible to analyze knapping strategies and techniques that were used in each dwelling and determine similarities and differences between them. According to the data from proximal debitage analysis it is possible to divide dwellings into two major groups on the basis of the way flakes were produced from local flint pebbles. The first group consists of dwellings where flakes were removed from a pebble's cortical surface of the pebble. In this group flakes are produced from impact along the cortical edge of the pebble. Using this strategy the dwellers inhabitants made quite thick and massive monopolar flakes that mostly belong to the secondary flake group (grouped by the Triple Cortex Typology). The same pebble reduction strategy was used for poorest quality imported flint as well. While good and excellent quality imported flint pebbles and nodules were transformed into platform cores or used as irregular multidirectional cores. In some cases, in this dwelling group local flint pebbles have been divided into massive debitage using bipolar technology as well. The secondary dwelling group consists of dwellings where the quality of a flint pebble did not affect the reduction strategy. In these dwellings both poor quality local flint pebbles and all kind of imported flint pebbles were transformed and used as platform cores and irregular multidirectional cores. In these dwellings flakes from local flint are more like flakes from imported flint - thinner and mostly with a flat striking platform. If the results of this study are compared with the study of pottery in the Sârnate settlement by Valdis Bērziņš, then the first group dwellings where raw material quality affected the pebble reduction strategy are mostly those where were used local pottery tradition: dwellings with Early Sârnate Ware and dwellings with Late Sârnate Ware where in dwellings where raw material quality did not affect pebble reduction strategy Typical Comb Ware pottery was mostly used.

TH1-16 Abstract 16
Localisation of Sources of Obsidian Registered in Bohemian Prehistory (Czech Republic)
Author - Burger, Pavel, Institute of Archaeology of the CAS, Prague, Czech Republic (Presenting author)
Co-author - Prichystal, Antonín, Department of Geological Sciences, Masaryk University, Faculty of Science, Brno, Czech Republic
Co-author - Prošek, Lubomír, Department of Chemistry, Masaryk University, Faculty of Science, Brno, Czech Republic
Co-author - Pěták, Jan, Department of Geological Sciences, Masaryk University, Faculty of Science, Brno, Czech Republic
Keywords: Czech Republic, Neolithic, obsidian
Presentation Preference - Poster

The poster summarises the results of the first geochemical analyses of prehistoric obsidian artefacts from Bohemia (Czech Republic, Central Europe). The analyses focused on eleven samples with reliable find contexts. The majority of the samples come from the Neolithic period (Linear Pottery Culture: LBK, 5000–4500 cal. BC; Stroked Pottery Culture: STK, 5000–4500/4400 cal. BC). Based on the data obtained, it is possible to locate the raw material of nine samples to the Slovakian source called Carpathian 1b (Bravo – Očko). However, the raw material of the two remaining samples dated to the same period comes from Hungarian sources, Carpathian 2b (Erdőbénye – Olaszítka). It is therefore evident that in the Neolithic period, obsidian from both Carpathian sources was used in Bohemia. Both sources are more than 500 km away from the sites studied, which suggests that direct access to the sources is highly unlikely. There are two possible explanations. Either, the obsidian raw material was transported to the Bohemian territory with the primary aim of gaining the raw material as such (good quality, black colour), disregarding its source. Thus, the final evidence of the two sources in the sites is the result of a pure coincidence. The other explanation is based on the possibility that different societies (settlements) had different demands or exchange strategies.

TH1-16 Abstract 17
Chocolate flint extraction points and workshops in Oronsko, Poland. Spatial and functional analysis
Author - Knezdzo-Goebala, Katarzyna, Institute of Archaeology and Ethnology Polish Academy of Science, Warsaw, Poland (Presenting author)
Keywords: chocolate, flint, Oronsko, Palaeolithic
Presentation Preference - Poster

Oronsko village and region is located in the northwest part of the chocolate flint deposits (one of the most valuable raw materials of Poland), on the northeast Massowian margin of the Holy Cross Mountains and Radom Plain, in the southern part of the Fond district, Masowian voivodship). The history of researches in this area began in the early XX century, when S. Kruczkowski discovered numerous sites connected with the exploitation of local raw materials that are dated from Late Palaeolithic to Early Bronze Age. During this research, the use of underground, mining methods there was also confirmed, and dated as early as the Late Palaeolithic and probably Early Bronze Age. All of the sites known from archaeological research (conducted also by other researchers until recently) have been collected in one database. This database contains 800 sites concentrated in the northwest part of the chocolate flint outcrops (about 60 km²), connected with the Stone Age settlement. The problem was that the diversity of their density results (besides potential prehistoric settlement factors) from the accessibility for research of the area, connected with the hydrology of this region, with many marshy areas that were inaccessible for surface observations, as well as the accuracy of research in particular areas. In part of this area, few investigations such as road building have been undertaken, which would have led to detailed surveys and excavations. Regardless, the database highlights the intensity of the sites and their broad chronological range. This database is consequently increased. Recently, after new surface field works that had to verify known mining sites (mining fields, workshops), new data were collected. This paper presents the information from the sites already known from earlier researches in light of new data obtained during the field works as well as remote sensing, aerial and satellite imagery analysis. Generally, it raises the problem of the Stone Age (mainly Palaeolithic and Mesolithic) settlement organisation system in the vicinity of the flint outcrops, its preferences and dependence on natural conditions, as well as the effects of chocolate flint outcrops vicinity and mining in different periods of the Stone Age.

TH1-16 Abstract 18
Analysis of household units from chipped stone tools at Alsónyék-Bátszék (Hungary)
Author - Szabó, Kata, Eötvös Loránd University, Budapest, Hungary (Presenting author)
Keywords: chipped stone tools, Late Neolithic, Lengyel culture
Presentation Preference - Poster

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

TH1-16 Abstract 19
The Flint Inventory of the Neolithic and Bronze Age from the sites at Żylicy (western Belarus)
Author - Valeev-Shcherbach, Sviatlana, Institute of History NAS of Belarus, Minsk, Republic of Belarus (Presenting author)
Keywords: flint industry, Neolithic, Przysłup-Neman culture
Presentation Preference - Poster

Żylicy district, Masovian voivodship). The history of researches in this area began in the early XX century, when S. Kruczkowski discovered numerous sites connected with the exploitation of local raw materials that are dated from Late Palaeolithic to Early Bronze Age. During this research, the use of underground, mining methods there was also confirmed, and dated as early as the Late Palaeolithic and probably Early Bronze Age. All of the sites known from archaeological research (conducted also by other researchers until recently) have been collected in one database. This database contains several hundred sites concentrated in the northwest part of the chocolate flint outcrops (about 60 km²), connected with the Stone Age settlement. The problem was that the diversity of their density results (besides potential prehistoric settlement factors) from the accessibility for research of the area, connected with the hydrology of this region, with many marshy areas that were inaccessible for surface observations, as well as the accuracy of research in particular areas. In part of this area, few investigations such as road building have been undertaken, which would have led to detailed surveys and excavations. Regardless, the database highlights the intensity of the sites and their broad chronological range. This database is consequently increased. Recently, after new surface field works that had to verify known mining sites (mining fields, workshops), new data were collected. This paper presents the information from the sites already known from earlier researches in light of new data obtained during the field works as well as remote sensing, aerial and satellite imagery analysis. Generally, it raises the problem of the Stone Age (mainly Palaeolithic and Mesolithic) settlement organisation system in the vicinity of the flint outcrops, its preferences and dependence on natural conditions, as well as the effects of chocolate flint outcrops vicinity and mining in different periods of the Stone Age.
There are eight multicultural sites known near Žalioji village (Hodni 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 Nemir River. Five of them were excavated between 1999 and 2011. The flint 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 Creteceous flint was used as a raw material, the tool set of the complexes under discussion is typical for the Neolithic and Bronze Age of the Upper Nemir region: triangular arrowheads, end-scrapers, borers, knives and knife-like blades, combination tools, burins, splitter notches, pricked notches, tools, axes and adzes. More than 50% of the flint artefacts are waste products: flakes, blades and technical chips. Typological and comparative analyses permit cultural and chronological interpretation of the material as well as highlighting the main features of the local flint industry of the Neolithic and Bronze Age. Therefore, flint materials testify to the presence of the population of the following cultural traditions on the settlements under discussion: Pripyat-Neman and Neman cultures, the Circle of the Corded Ware Culture, and the Trzecioic Culture Circle.

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

Author: Dr. Weikert, 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 embedded or enacted through the material trappings as well as the spatial indications of the buildings. 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, Abernach, 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 reinvigorating castle studies by promoting new approaches and interpretations. However, in this work, the county of Cheshire in north-west England has been hitherto 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 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 multifarious 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 activities that more or less influenced the character of buildings and activities that have been happening in and around it. In a way, preserved structures of Petraiplos are reflection of historical processes that have been changing Istrian peninsula through long period of Middle Ages.

PETRAPILOSA. Building and historical development of medieval fort
Author - M.A. Vlijoč, Josip, Croatian Conservation Institute, Svetvinčenat, Croatia (Presenting author)
Keywords: development, Medieval fort, preliminary reconstructions Presentation Preference - Oral
The Medieval fort Petraiplos is situated in the northeast of the Istrian peninsula in the Republic of Croatia. It is one of the largest, and as historical sources indicates, one of the most significant feudal forts in Istria. Systematic archaeological researches of the fort area have been conducted in the last six years that confirmed the lengthy and very dynamic development of this fort. The results of the archaeological researches in combination with the detailed analysis of the preserved wall structure allowed us distinction of eleven phases of development that covers period from 11th till 17th century - a process that synthesises both the stages of growth and development and episodes of destruction or degradation. These analyses allowed us a reconstruction of the appearance of the fort in its various developmental phases. Development of building structures was closely connected with different periods of society. In this paper, we will discuss in detail that more or less influenced the character of buildings and activities that have been happening in and around it. In a way, preserved structures of Petraiplos are reflection of historical processes that have been changing Istrian peninsula through long period of Middle Ages.

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

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

Some of the early medieval churches have been dated with dendrochronology and span from the 1110s up to around 1250. A group of roof trusses with two central struts (often meeting the rafters and tie beam) with tenons seems to belong to the oldest ones, though these are only partly preserved in a few geographically concentrated churches. The most common type of roof trusses has crossed struts, the most advanced of them boasts six and the most simple two. Some of these roof trusses have decorative features or mountings for liturgical bells, which clearly shows that the earliest stone churches in the diocese did not have ceilings or vaults. Four early medieval tower roofs have been preserved.

From the end of the 12th century up until the beginning of the 16th century, very few constructions are preserved. Probably there were never existed any great number because of the economic and political decline for Västergötland after the plague and agrarian crisis in the mid-14th century. Roof trusses from these centuries exist today in 13 churches.

The Cathedral of Anagni.
A case study of the evolution of Southern Lazio in the Middle Ages
Author - Dr. Nastasi, Arianna, Università di Roma Sapienza, Roma, Italy (Presenting author)
Keywords: buildings archaeology, cathedral, medieval Italy Presentation Preference - Oral
The cathedral is one of the most distinctive buildings of the medieval city. Symbol of the power of the Bishop and of the Church and connected with the heart of the territory represented by the city of Rome, the cathedral offers a valuable insight into medieval society. In Italy this type of building influenced settlement dynamics in different ways across the geographical areas. In particular, in Central and Southern Italy, the cathedral was often a site in conflict due to the proliferation of dioceses with limited territorial extension and uncertain borders subject to suppressions and unifications. It is within this context that the proposed case study of the Cathedral of St. Mary in Anagni is situated. Today this church presents a Romanesque architectural style, as designed and developed by Bishop Peter from Salerno, in the eleventh century. However, its history dates back at least to the 12th century earlier: A comparison between archaeological data and written sources points to the hypothesis that the first cathedral was built in the ninth century by Bishop Rumarik of Anagni. The site where today rests the Romanesque church is thus possible to reconstruct the development of the cathedral over the centuries from the Early to the Late Middle Ages. The church of St. Mary can be situated within the historical evolution of the territory at a time when the Carolingian kings recognised and guaranteed to the Church of Rome its spiritual and political power by granting it large portions of land to rule. Evidence of this wide administration is found in the exceptional epigraphic record that is today held at the Diocesan Museum of Anagni. The record consists of a corpus of inscriptions all of which are inscribed to the same charta latae, namely a documentary epigraph, a copy of a notary deed which lists chartels and landed properties attributed to the cathedral. The inscriptions, characterized by strong stylistic and palaeographic similarities, are engraved on parts of sculptural ornaments belonging to the liturgical decoration of the ninth century church. The examination of these inscriptions has generated two results. Firstly, a reconstruction of the extent and importance of the land donated to the church; secondly, a hypothesis about the original location of the marble pieces today decentralized by their display in a museum. The decoration engraved with inscriptions has an even more important value if we consider that many of the fragments were consciously reused by Bishop Peter from Salerno for the Romanesque makeover with a clear symbolic intent of reconnecting with a historical moment of supremacy of the Roman Church in which bishops, as local representatives, were the pinnacle of territorial power.

The medieval hospitals of England: a complex issue
Author - Huggon, Martin, University of Sheffield, Sheffield, United Kingdom (Presenting author)
Keywords: Archaeology of charity, Hierarchies of space, Medieval Hospitals Presentation Preference - Oral

Archaeology is indispensable for the understanding of the early period (10th-13th c.), for which there are very few, if any, written sources. Although the study of built structures is a relative new sub discipline in the field of medieval archaeology, in the last decades has brought important contributions to the better understanding of the history of this area. In my paper I will provide an accurate overview of this topic and focus on the ruined church uncovered recently in Alba Iulia fortress – the oldest medieval church ever found north of the Lower Danube. The ruins were unexpectedly discovered during structural works, in a very complicated stratigraphic context, consequence of the use of the area during the last two thousand years. Preliminary, Roman, post-Roman, Deposit, 7th-8th centuries’ habitation evidence and medieval evidence that was in use for about a hundred years, until it was in turn pulled down during the second half of the 11th century, when the first Roman-Catholic Cathedral was being built. Subsequently, the ruins were disturbed and partly destroyed by the 11th-13th centuries’ stages of growth and development and episodes of destruction or degradation. These analyses allowed us a reconstruction of the Carpathian Basin around the year 1000.

Interpreting the Archaeological Record
Author - Dr. Istrate, Daniela Veronica, Braov, Romania (Presenting author)
Presentation Preference - Oral
Keywords: building archaeology, medieval church, Transylvania
My paper will explore the region of central-western Romania, commonly known as Transylvania, in the first centuries of the second millennium. This region was part of the Kingdom of Hungary, but was in fact located on a confessional and ethnic frontier, between Orthodox and Catholic Europe, and in an area of bewildering ethnic and linguistic variety—both factors responsible for giving the region its distinct character of a borderland. One of its most significant forms of expression of that character was religion: pagans, orthodox and catholics settled this area and found specific ways of living and practicing their beliefs.

TH1-17 Abstract 05
Medieval Roof Trusses in the Swedish landscape of Västergötland
Author - Master Gullbrandson, Robin, Västergötlands Museum, Skara, Sweden (Presenting author)
Keywords: Medieval churches, Medieval roof structures Presentation Preference - Oral
This paper deals with the methods and results of an inventory made 2014-2015 with the aim to survey what is preserved of medieval roof constructions in church attics in the Diocese of Skara in the landscape of Västergötland of western Sweden. More or less intact roof trusses from the 12th century up until the first half of the 13th century are scarcely preserved outside Scandinavia, which add up to the importance of mapping this quite unknown heritage in Sweden. Similar surveys have been made in the dioceses of Lund, Skara, Stockholm, Strängnäs and Västerås during 2013-2015 and are about to be made in Linköping, thus giving us a more complete view of the grade of preservation.

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

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

Some of the early medieval churches have been dated with dendrochronology and span from the 1110s up to around 1250. A group of roof trusses with two central struts (often meeting the rafters and tie beam) with tenons seems to belong to the oldest ones, though these are only partly preserved in a few geographically concentrated churches. The most common type of roof trusses has crossed struts, the most advanced of them boasts six and the most simple two. Some of these roof trusses have decorative features or mountings for liturgical bells, which clearly shows that the earliest stone churches in the diocese did not have ceilings or vaults. Four early medieval tower roofs have been preserved.

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This paper will outline the importance of examining the full range of buildings found at the medieval hospitals of England, and how they interact as part of a complex, for understanding how these sites functioned, both physically and religiously. The medieval 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 overarching 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 and form, has been neglected. Previous architectural discussion of English medieval hospitals have focussed specifically on the infirmary hall and chapel, the most likely elements to survive as standing remains, and have otherwise noted little overall planning to the site. If the rest of the buildings, such as kitchens or dormitories, are studied at all. Archaeologically, despite the ever increasing number of excavations from across the country, there has only been limited synthesis, the most complete by Roberta Gilchrist in 1995. In both fields the great variation in the nature and form of these buildings across the 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 Magdalene at Patney, and suggest that the layout of English medieval hospitals was likely based upon religious ideology, social standing, and attitudes to gender. This paper will also highlight some of the implications this ordering of space may have had 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.

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

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

Keywords - Geoarchaeology, Monastery, Settlement

Presentation Preference - Oral

This question is the central part of a beginning master’s thesis dealing with geoarchaeological methods and how they can help us interpret archaeological evidence regarding settlement, landuse and the human impact on landscape and nature.

The monastery of Rinchnach, located in the Bavarian Forest, is said to have been the first settlement in this region. Apparently, St Gunther, founder of the monastery, started the clearing of the forest and the building itself back in 1011 AD. 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 landuse, agriculture, the origin of building materials and perhaps the general human impact on flora, fauna and landscape itself. Furthermore with analyses like radiocarbon dating or archaeological researches, a chronological overview can be given.

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

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

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

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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.

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

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

Keywords - Buildings and property, medieval town, Norway

Presentation Preference - Oral

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

The paper aims to present one of the buildings in a Norwegian medieval town property, a “bygård”, literally a “farm in the town”. The building itself has at least two building phases, and possibly several phases of occupation and use. There are several ovens used for metalworking on the property, as well as evidence of domestic activities like a latrine and keeping animals. I will show how the use of the building and the surrounding property changes over time and how they fit into the context of the town.

The excavations have shown that several of the neighboring properties may also have been used for metalworking. This could mean that the buildings and other features in the excavated area formed part of a metalworking district in the heart of the town of Oslo until a new law, Magnus the Law-mender’s law for the towns, was introduced around 1276. This law regulated metalworking activities to the fringes of the town because of the risk of fire. The excavated building was destroyed in a fire, demonstrating the need for such regulations.

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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?

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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

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Interpreting the Archaeological Record

Title: Urban life in an early byzantine small scale house
Author: M.A. Steinborn, Miriam, Römisch Germanisches Zentralmuseum Mainz, Mainz, Germany (Presenting author)
Keywords: Byzantium, Excavation, Household

The early byzantine settlement of Carinč Grad in southern Serbia, which is supposed to be the imperial city Lutiniana Prima, existed for merely 90 years. Without any marks of earlier or later occupation, the excavations provide undisputed insight into everyday life in an early medieval settlement of the 6th century. Excavations in Carinč Grad take place since 100 years. The early campaigns concentrated on representative buildings like churches, while the emphasis nowadays is on the living quarters. Considering the concept and methodology of Household Archaeology, one single room house was excavated in 2014 and 2015 in high resolution with integration of archaeobiology and soil science. The finds indicate a habitual function. The interpretation of the building bases on the results of the interdisciplinary research. The simple configuration of the house and the multiplicity of potential types of use in a single room structure challenge the examination. This is the crucial point where field work and the theories of Household Archaeology come together. Working with an elementary constructed house and a few objects connected with specific activities restrict the possibilities which houses with many rooms and outdoor-areas may provide. It is necessary to examine the activities in- and outside the building to understand the function the household fulfils in the settlement system regarding social, religious and economic aspects. The building accommodated one or more persons who became a part of the community on a low social stratum. Taking their perspective on the settlement raises the question of their everyday life. The household can be seen as the place where social roles are negotiated in daily routine and thus as a social landscape which reflects the mentality of the dwellers. The analysis of installations and formation processes helps to understand activities carried out in daily routine and how the domestic space may be used. The distribution of finds is interconnected with the household and its function. This is also valid for the domestic activities display in little the organisation of the whole settlement. Working on households provides information of how the dwellers contributed to the development of the society. Changes and continuities in the ceramic spectrum and the settlement structure may indicate cultural but also economic transformations which concerned the ordinary people directly.

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

Title: The Formation of the three-compartment rural house in medieval Central Europe
Author: Assoc.Prof. Vareka, Pavel, University of West Bohemia, Pizen, Czech Republic (Presenting author)
Keywords: cultural synthesis, medieval archaeology, rural housing

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 (anymost in Eastern Central Europe) or a byre (in Central Europe), it has remained the most common type of traditional village house until the 20th century. Identical house forms appear 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.

Title: Special building materials?
The architectural importance of placed deposits in early medieval Europe
Author: Dr. Sofiäld, Clifford, University of Oxford, Oxford, United Kingdom (Presenting author)
Keywords: Architecture, Society, Worldview

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 building, charms to ward off evil, or offerings to a supernatural power. Recent research has preferred to view these deliberately ‘placed’ deposits as traces of household practices, intended to achieve practical domestic results. This paper proposes that placed deposits can be partly understood as a kind of building material widely used throughout early medieval Europe, with specific examples drawn from southern Scandinavia, Germany, the Netherlands, England, Ireland, and Iceland. The main focus will be on two widespread patterns: the placement of objects under hearths or floors, and the burial of material (especially animal remains) in doorways. The paper will argue that such deposits should be viewed not as accessories to a self-sufficient, completed structure, but as integral components of the building’s architecture, without which its ability to function as a building would be seriously, even fatally, compromised. The paper will close with a brief consideration of how objects deposited in buildings at their demolition may have been cornerstones of an ‘architecture of destruction.’
The rise and development of brick production in Vilnius, the capital of the former Grand Duchy of Lithuania, was inspired as strategically important craft. The production of bricks has been changing and improving during more than seven centuries. Therefore brick is an important source providing the knowledge about the technical development, production potential and cultural influence during different periods. The evaluation of physical and chemical properties of bricks would enable us to judge about the technological standards of Vilnius bricks, deviations from them and their reasons. The promising investigation methods of the old bricks are related to applied methods of exact sciences. One of them is geochemical method. The geochemical data statistically grouped using Ward's hierarchical clustering (Sarcevičius, Taralaitėnaitė, 2015, Archaeologia Lituana, v.16, p.45-62) enables to hypothesise that: a) in certain chronological periods the material for construction of buildings and production of bricks could be extracted from the same or adjacent clay deposits similar in mineral composition; b) there existed brick production technologies specific for that period. So, it is possible to try to create peculiar “multivariate calibration 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, Pb, Zn, Pb, etc.).

Aiming to obtain more precise interpretation of brick origin and technological processes using geochemical methods it would be useful: a) to take more (³3) sub-samples from the same brick (avoiding the effect of random sample selection), b) to take samples from the inner part of the brick (reducing anthropogenicchemical component), c) to use multivariate analysis method with obligatory determination of total content of main major chemical elements and their specific satellites, d) to compile geochemical database of as many as possible exactly dated bricks (when a, b and c requirements are met), e) to select the set of chemical elements for multivariate analysis basing on various geochemical features (not only variability of composition), f) to verify and supplement the results of cluster analysis with the help of other multivariate statistical methods; g) to accumulate geochemical data on potential raw material (clay) deposits.

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

Social change is sometimes more than a shifting landscape. It is a social process of negotiation and contestation. Often new social forms are not immediately visible. The goal of this paper is to provide a theoretical framework for the analysis of social change by exploring the social negotiations shaping major shifts in European prehistory. Integrating Victor Turner’s theory on ritual process and William Sewell’s concept of historical change I will present a historical processualist approach to death rituals. I argue that a contextual and sequential analysis of funerals is a powerful tool to reveal micro-political processes contributing to broad historical transformations.

In specific the session welcomes case studies and comparative studies addressing these themes, but also theoretical approaches on social dynamics in periods of transformation. The session will be geographically limited to the Nordic Bronze Age sphere including all parts of Northwest Europe (e.g. the Baltic states, Nordic countries and countries bordering the Atlantic).
How then should we perceive the Late Neolithic and Earliest Bronze Age societies of southern Scandinavia?

One of the most significant features of the Late Neolithic was the ‘reintroduction’ of metal. Even though limited in number, the presence of metal objects bears witness to the establishment of far-reaching contact and exchange networks, which then developed further from around 2000 BC, as a result of increased links with the Unetice culture. The amount of imported metal had, however, not yet reached a level, which allowed the formation of formal hierarchies.

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

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

However, in contrast to the Early Neolithic, metal was, from around 2000 BC, an inevitable precondition for the production of ‘international’ status symbols and up-to-date weaponry such as daggers, halberds and spearsheads, as well as gold and bronze rings etc. The necessity of obtaining bronze and gold meant that it became more difficult to manifest oneself as an influential individual or ‘big man’ without access to these prestige goods. As a consequence, formal hierarchies and centralisation of wealth developed further and the classic Nordic Bronze Age became a reality.

Author - archaeologist Borup, Per, Horsens Museum, Horsens, Denmark (Presenting author)
Presentation Preference - Oral
At the location stbirk, Eastern Jutland, large quantities of charred grain reflect the extended agriculture in the Late Neolithic. Different crops were cultivated separately, presumably in a system of crop rotation. At the same time new types of ‘outhouses’ emerged at the settlement, apparently as a function of economy building or barns. Was it an increasing demand for storage that also soon affected the construction of the longhouses ending up with a three-aisled construction at the beginning of the Bronze Age? A moderate size indicates that the appearance of the three-aisle building here initially had a functional purpose related to the interior of the house.

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

I use these barrows as an example on which I want to explore the ways in which the modernist concept of “individual” have been used to interpret the change in funerary practices, or, to put it more explicit – how the modernist concept of individual proliferates into the discussion of features within archaeological context. My aim is not to refute the idea of the individual altogether, but to explore other potential productive ways of interpreting the funerary practice based on close study of a selection of barrows.

I adhered 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.

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

However, despite extensive commercial archaeology and major research programmes, there are still no convincing explanations for the significant trends seen during this period such as: the relative invisibility of settlements from c. 2200-1500 BC (Allen 2005); the dramatically increased visibility of settlements after c. 1500 BC (Brück 2000); the emergence of apparently defended settlements and hillforts from c. 1200 BC (Brown 2008); and the perplexing and continuing absence of any villages (Rathbun 2013). Previous analyses of Bronze Age living spaces in Britain have traditionally concentrated upon the structure and activities occurring within defined settlements or small settlement clusters (e.g. Pope 2003). Instead, this paper will present a new method that systematically compares the contents of settlement ensembles using the initial results of my PhD research, focusing on 40 settlements sites found solely within the southwest region of Britain (Wiltshire to Suffolk, Gloucestershire to Dorset). I discuss the variations in these settlements’ placements over time in respect to contemporary and antecedent cultural and landscape features within their environments. These ensembles are defined through a custom cost surfaces model which has been used to estimate the maximum distances that might have been reached by occupants of these settlements, considering slope and terrain, within one day. The comparison of these ensembles’ contents has begun to identify trends in priorities of these sites’ inhabitants in relation to both “economic” and earlier ritual features which will be shown to change over the course of the Bronze Age.

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

Prehistoric Settlement and Society in Britain and Ireland


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TH1-18 Abstract 07

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

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

Keywords: Monumentality, Social organisation, Wessex

Presentation Preference - Oral

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

The implications of Renfrew's (1973) study were far reaching; the great monuments of Wessex were, in effect, presented as the earliest evidence of hierarchical institutions exercising power and control in Britain. Moreover, in contrast to earlier, culture-historical models of the past, Renfrew's (1973) explanatory framework succinctly demonstrated how internal processes, not external forces, were responsible for large-scale social change. Throughout the 1980s and 90s, however, a number of researchers began to question Renfrew's (1973) claims and the anthropological theory that underpinned them (e.g. Hodder, 1985; Barrett, 1994).

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

This postprocessual view garnered particular popularity within the field of British prehistoric monumentality and, from the mid-1980s onwards, there was a rapid move away from quantifying the intrinsic properties of Neolithic monuments towards a structuralist consideration of the kind of social orders their form, material, or position in the landscape could have embodied (e.g. Parker Pearson and Richards 1994). This theoretical shift allowed archaeologists to successfully 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 Stangin and Bradley, 1981) and, secondly, alternative narratives of how changing monumentality fitted into large-scale upheavals within social organisation were eschewed.

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

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TH1-18 Abstract 08

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

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

Keywords: Bronze Age Denmark, craft specialization, lithic technology

Presentation Preference - Oral

An archaeological examination of lithic inventories from a number of Danish Bronze Age settlement sites will provide the basis for a discussion of the role of skilled mass production of lithic artefacts in past metal using societies. Based on a contextual chain of data analysis the paper will focus on the technological and socio-economic processes pertaining to raw material exploitation patterns and procurement strategies through time and it will examine the question of control over and access to resources. The concluding discussion will proceed to address the degree of craft specialisation and the role of flint craftsmanship on a diachronic scale in relation to contemporary socio-economic structures.

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TH1-18 Abstract 09

Contact Networks in Metalcraft: the Nordic Bronze Age between 1500-1000 BC

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

Keywords: itinerant craftsmen, Metalcraft, workshop organisation

Presentation Preference - Oral

Different craftspeople and their area of influence could be identified, from a craftsman's point of view, and as such also workshops and contact networks. With the knowledge of distinct techniques, the different skill levels of craftsmen and their affiliation to each other the organisation of metal craft and specific workshops were defined within the Nordic Bronze Age. The intensive exchange of technical knowledge between workshops around the North Sea formed contact networks that are clearly visible in the material of the Nordic Bronze Age. This presentation will focus on distinct traces on bronze ornaments that show the development of specific technologies or techniques especially at the beginning of the middle Bronze Age and its end. The analysis of said technological peculiarities resulted in differently structured workshops, like kinship based workshops (spread over the entire area and probably related to villages), communities of practice (with an extended market and possibly some kind of relationship to the local elite) and occasionally also attached craft in, in the sense that the craftspeople fully depended on 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.

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TH1-18 Abstract 10

Dynamics and transformation during the Late Bronze Age of western Norway

Author - Ass. Prof. Amalfitano, 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 time of transition of the Bronze Age, there is a quite apparent change in relations and material culture in the LBA. It has been argued that the region looses much of its significance to the cost of eastern Norway. Therefore, this paper will look at the materiality including changes in burial patterns and the use of various raw materials of the LBA in western Norway and correlate this with possible changes in economic structures and agricultural practice. This will be combined with the broader north European pattern of changes in order to understand the social dynamics involved in these processes.

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TH1-18 Abstract 11

Social dynamics in Bronze Age Scania

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

Keywords: Bronze Age, Cultural landscape, Social dynamics

Presentation Preference - Oral

In southern Scandinavia an interesting turning point appeared around 1200 BC when the tradition of building mounds came to an end and was replaced by urn burials. New excavations in south Sweden (Scania) demonstrate the urn burials to be organized on a regional scale in relation to contemporary socio-economic structures.
**FOOD CHOICE AND ALIMENTARY PRACTICES: FROM MEALS TO DIET AND FROM SITE TO REGION - THE DIFFICULTIES AND BENEFITS OF EXAMINATIONS OF DIET AND DIETARY PRACTICES**

**Friday, 2 September 2016, 09:00-16:00**

**Faculty of Philosophy, Room 201**

**Author** - Vahlhold, Julian, Inrap; Metz; France (Presenting author)

**Co-author(s)** - Hondelink, Merit, Archeodienst Noord bv, Groningen, Netherlands

**Co-author(s)** - O'Meara, Don, Durham University; Department of Archaeology, Durham, United Kingdom

**Keywords:** Alimentation, Archaeobotany, Food choice

**Presentation Preference - Workshop**

The development of cooking and food preparation practices transform raw ingredients into edible food. This transformation is not only chemical, but also cultural. This forms part of what the anthropologist Claude Lévi-Strauss suggested sets humans apart from apes and makes us a “cooking animal” (1964: Le Cru et le Cuit). These complex actions (cooking and cultural assimilation) may take two forms, those which leave traces in the archaeological deposits and those actions which may leave no physical trace in the archaeological record.

When examining preserved food remains on a supranational level the environmental record within Europe has facilitated some successful studies for some regions and periods (Livarda and van der Veen 2008; van de Veen, Livarda and HH 2008). The evidence of preparation techniques is supported by the remains of flora and fauna that are indicative of food choice and alimentary practices. Later, from the historic period onwards, we have textual documents which add much detail in form of economic documents, recipes, and personal observations on food consumption.

But to what extent are these practices limited to different periods, cultures, peoples and places? And to what extent do modern political boundaries, differences in philosophical, or methodological approaches to archaeological remains limit our ability to create pan-European narratives on the nature of human food use from different periods?

This session aims to explore how food choice and alimentary practices in Europe changed through time, but also how these changes may be linked to culture, technological innovations, shifting borders and the rise and fall of civilizations. This session encourages researchers who have successfully studied different cultures or periods, passing existing cultural or political borders (e.g. from different cultures or European countries) or comparing rural environments to towns, but also those who have encountered difficulties when trying to operate such projects.

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**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)** - Turetckii, Michael, Volga Region Branch of Institute of the Russian History of Russian Academy of Sciences, Russian Federation

**Co-author(s)** - Kulikova, 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 Samarskoye 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 vary considerably in size – from microflints to unbroken blades of more than 10 cm. The tools made of blades are represented with end-scrapers, chisels, sharp points, arrow heads, and blades with dregging.

The finding of an accumulation of semi-finished products and unbroken tips 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, wreathes 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 Yemnoy culture.

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

The series of 15 radiocarbon data based on animal bones from all the sections of the settlement area, and from different depths was undertaken. The materials of E-complex have been dated approximately by 4900-4440 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 radiological dating from Turganic settlement Ki-16597-4710±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 Yamnaya culture. The ceramics from the BA-layer of Turganic settlement is similar to the ceramics from these sites.

The author thanks RFH for support with grant No. 14-01-00127 and Ministry of Education Russian Federation for help with the State Assignment No. 33.147.2014K.
Finding broken grain in the archaeobotanical record: ethnoarchaeological and experimental approaches

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

Cereals have been a major contributor to human diet in many parts of the planet during the past 10,000 years. They can be consumed in a large variety of ways (grains, bulgur, flour, bread, etc.), which makes the archaeological recognition of cereal food remains extremely difficult. In the last decade, a larger number of archaeobotanists have shown their concern for the identification of archaeological fragments of cereal grain produced prior to charring. Their identification seems to remain somewhat problematic, and their interpretation is open to discussion. They are often seen as evidence of bulgur production, but how can we exclude that they were not produced during cereal dehusking or threshing, or during flour production? During the last years we developed three independent lines of research that we would like to combine in this presentation. These are of different nature: ethnoarchaeobotanical, experimental and archaeobotanical.

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

The experimental research consisted in the dehusking of several cereal species using different techniques and different pre-treatments in order to observe the degree and type of breakage that was produced on the grains. Finally, a systematic analysis of the fragments produced prior to charring in Neolithic sites of the NE of the Iberian Peninsula was conducted. They were not only quantified but also the type of fragment and the size were recorded, as potential relevant variables to understand the process that generated these fragments.

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

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

Author - Dr. Ros, Jerome, UMR7209, CNRS/MNHN, Paris, France (Presenting author)
Co-author(s) - Dr. Gilotte, Sophie, UMR6148, Citéhum, CNRS, Lyon, France
Co-author(s) - Dr. Gasc, Sébastien, Université de Picardie Jules Verne, Amiens, France
Co-author(s) - Dr. Sénac, Philippe, Université Paris IV-Sorbonne, Paris, France
Keywords: al-Andalus, archaeobotany, islamic diet
Presentation Preference - Oral

In the literature (i.e. Watson, Aubâlie-Sallenave, Decker), it is stated that the beginning of the Islamic period (7th c. A.D.) led to the development and spread of a new type of agriculture, event often characterized as “the Islamic agricultural revolution”. This “new” agriculture would have been based on several criteria: spread of new irrigation methods, use of intensive fertilizers, spread and improvement of several agricultural practices (i.e. grafting), development of spring crops, broadening of the diversity of plants exploited and spread of new species, development of new varieties, etc. A recent synthesis led agriculture in al-Andalus later 7th c. A.D is seen as a continuous process, introduced or spread by arab-barber populations. Nonetheless, the knowledge we have of Islamic diet and agriculture in al-Andalus is mostly based on three types of sources: written sources (i.e. agronomic, medical, food treatises, tax sources, etc.), iconographic sources (illustration of said treatises) and archaeological sources (i.e. excavation of irrigation structures). Data documenting directly these questions remain scarce, especially for rural areas.
Interpreting the Archaeological Record

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

Author: Prof. Valerioti, Soutaina 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. Stafleus Jacomet), University of Hohenheim in Germany (Dr. Hans Peter Silik) 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 original ethnographic investigations and insights of ancient tests, the project aims to provide a multifaceted and integrated approach of Europe’s cuisine during late prehistory to the present.

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.

TH1-19 Abstract 08
Medieval alimentation habits deduced from archaeological studies of cesspits

Author: Dr. Weithold, Julian, Inrap, Metz, France (Presenting author)
Keywords: Archaeobotany, Early modern times, Middle Ages
Presentation Preference: Oral

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

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

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

TH1-19 Abstract 09
Aspects of the Diet of the Medieval Population (10th – 12th Century AD) in Northern France: the archaeobotanical study from the castle of Boves and surroundings sites

Author: Dr. Preiss, Sidonie, Royal Belgian Institute of Natural Sciences, Brussels, Belgium (Presenting author)
Keywords: medieval diet, medieval period, social status
Presentation Preference: Oral

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

The social context of the archaeological sites is heterogeneous. Therefore, it’s possible to compare and to discuss the potential of archaeological data helping to identify social differences by defining archaeobotanical indicators of social level from the food practices and the diet. Indeed, we can define and approach some direct (presence of certain species, taxonomic size spectrum...) and indirect indicators (method of administration, food preparation, food quality, such associations ...) of the social status.

TH1-19 Abstract 10
The contribution of pollen analysis to the archaeobotany of cesspits

Author: Dr. Deforce, Koen, Royal Belgian Institute of Natural Sciences, Brussels, Belgium (Presenting author)
Co-author(s): Brinkkemper, Otto Dr., Cultural Heritage Agency. P.O. Box 1600, NL-3800 BP Amersfoort, Netherlands
Keywords: cesspits, diet, pollen
Presentation Preference: Oral

Archaeobotanical analysis of cesspits is an important source of information on former diet, medical practices and other types of plant use. A large range of food plants such as leafy vegetables, herbs and spices of which only the leaves or flowers are used, generally remain invisible or occur only very sporadic in the macrofossil records. This is because these plants are harvested and used as food before they produce seeds. As a result, little is known about the import, local production and consumption of many of these plants in the past.

The former use of some of these plants, such as garden chervil (Anthriscus cerefolium), beetroot (Beta vulgaris), borage (Borago officinalis), capers (Capparis spinosa), spinach (Spinacea oleracea) and many other plants can be demonstrated by pollen analyses of archaeological remains of cesspits however. This paper now presents a first overview of a large set of pollen data from Roman, medieval and post medieval cesspits from Belgium and the Netherlands for several of these plants and discusses their use during the respective periods.

TH1-19 Abstract 11
Animals, Meats, Waste and Garbage in Medieval Visby

Author: Maria Malemborg, Gustav, Uppsala University, Visby, Sweden (Presenting author)
Keywords: Medieval Visby, Social Economic, Zoological archaeology
Presentation Preference: Oral

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

Unmasking millet from a multi-proxy approach

Unmasking millet from a multi-proxy approach

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

An extensive palaeobotanical sampling program was carried out at the Early Medieval village of Gózquez (central Spain, AD 525-750). It is one of the most comprehensive collections of botanical remains so far analysed for this kind of geographic and chronological area. Analysis of > 8800 items from 34 positive samples were retrieved. Hullled barley and free-thrashing wheats were the dominant species. Hullled barley and free-thrashing wheats were the dominant species. Hullled barley and free-thrashing wheats were the dominant species. Hullled barley and free-thrashing wheats were the dominant species. Hullled barley and free-thrashing wheats were the dominant species. Hullled barley and free-thrashing wheats were the dominant species.

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

An extensive palaeobotanical sampling program was carried out at the Early Medieval village of Gózquez (central Spain, AD 525-750). It is one of the most comprehensive collections of botanical remains so far analysed for this kind of geographic and chronological area. Analysis of > 8800 items from 34 positive samples were retrieved. Hullled barley and free-thrashing wheats were the dominant species. Hullled barley and free-thrashing wheats were the dominant species. Hullled barley and free-thrashing wheats were the dominant species. Hullled barley and free-thrashing wheats were the dominant species. Hullled barley and free-thrashing wheats were the dominant species. Hullled barley and free-thrashing wheats were the dominant species.

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**TH1-19 Abstract 13**
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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 Constaence 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, Melte Marie, National Museum of Denmark, Copenhagen K, Denmark (Presenting author)
Co-author(s): Missvidt, Jacob, Museum of Copenhagen, Copenhagen, Denmark
Co-author(s): Magnussen, Betina, Museum of Natural History, Copenhagen, Denmark
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Co-author(s): Fischer Mortensen, Morten, National Museum of Denmark, Copenhagen K, Denmark

Keywords: archaeobotany, diet
Presentation Preference - Poster

During archaeological excavations in central Copenhagen a latrine dated to the 1680s was uncovered. The poster presents results from the combined analyses of animal bones, waterlogged plant remains, pollen, and eggs from intestinal parasites found in the latrine. The results show how the diet of the local users of the latrine was varied, including several types of fish, pork, a range of cereals, herbs and fruits, some of which were exotic. The number of intestinal parasites also shows that hygiene was rather low. DNA analysis of the parasite eggs is carried out in order to get to a species determination as well as investigating the zoonotic potential. The archaeological material from the vicinity suggests that the local inhabitants would have been in contact with traders from the Netherlands, based on the architectural, numismatic and ceramic finds. This is corroborated from the find of buckleheat 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. Peregò, Renata, Integrative Prehistory and Archaeological Science IPNA/IPAS, Basel, Switzerland (Presenting author)
Keywords: archaeobotany, Middle Bronze Age, Panicum miliaceum
Presentation Preference - Poster

In the Neolithic Northern Italy, broomcorn millet (Panicum miliaceum) remains are sporadic and doubtful. Certain identifications originate from two Chalcolithic sites: Monte Testaccio and Velatum-Tangashe. Nevertheless, these finds are represented by single grains. Panicum is still sporadic in Early Bronze Age (EBA), while it expands from the Middle Bronze Age onwards and reaches its maximal diffusion in the Iron Age and in medieval times.

The huge amount of broomcorn millet remains in the Middle Bronze Age (MBA) layers of the Lavagnone site (Garda region), are of importance as they are found in stratigraphic continuity with underlying EBA layers. This allows analysing quantitative changes in plant macroremain spectra, shedding light on the acquisition of new crops at the Early to Middle BA boundary. After this transition, we observed a higher biodiversity in the plant fossil assemblage, marked by increase and diversification of the terrestrial herbs. The occurrence of many new taxa accounts for a diversified and wider open land. Most of these newly introduced taxa (e.g. Agrostis tenuis, Medicago minima, Crithmum maritimum, Onopordum acanthium, Pastinaca sativa, Silene aethiopica) prefer dry and warm habitats. It is in this scenario that broomcorn millet started to be widely cultivated. The ecological tolerances of broomcorn millet should also be considered in order to explain its adoption in a multiple cropping system. It is a summer crop, sown very late in spring, as it does not withstand frost during germination. It grows well in regions characterized by warm and Mediterranean type climate with a short rainy season, on poor soils and under severe droughts. The MBA Garda region held very well all these environmental features.

All in all, ecological drivers seem to have played a significant role in spreading the cultivation of broomcorn millet in the Garda region. Furthermore, social processes and economic relations are not to be excluded in the perspective of an overall process of improvement of crop husbandries practices.

We can conclude that the plant economy of Middle Bronze Age in Northern Italy is well characterized by introduction of new cultivars (broomcorn millet), together with an intensification of crop husbandry practices and a diversification in rotation systems.
TH1-20 Abstract 01
Introduction. Regional and chronological development of fishing

Author - Lisbeth, Centre of Baltic and Scandinavain Archaeology (ZBBAS), Schleswig, Germany (Presenting author)
Co-author(s) - Bergsak, Knut Andreas, University Museum of Bergen, University of Bergen, Bergen, Norway
Co-author(s) - Koolof, Stanislav, Institute of Prehistory and Early History, Christian-Albrechts University, Kiel, Germany
Co-author(s) - Koolof, Satu, Department of Archaeology, University of Helsinki, Helsinki, Finland
Co-author(s) - Pedersen, Lisbeth, København, Denmark

Keywords: Prehistory, Fishing, Mesolithic, Fish, Archaeology

Title:舒服钓鱼在Mesolithic西部挪威

Abstract:

Fishing has been one of the simplest sources of livelihood in prehistoric times. Wherever available, fish constitutes an important food source. Apart from the nutritional value, all parts of the fish have been utilized for various purposes. Humans' adaptive and innovative ability to conquer new ecological niches and to respond to environmental stress led to the invention of new fishing technologies and, e.g., mass-harvesting facilities and highly organized procurement strategies. Sometimes fisheries are labour-intensive and collective effort may have been required. Hence, fishing techniques may be closely related to the socioeconomic, cultural, and sociopolitical systems in fishing communities, as well as to population dynamics. Cultural constraints, behavioural interactions, and social norms might have regulated fishing and the consumption of aquatic resources. Exploitation technologies might express group identity, and provide insights into contacts and communication between different fishing societies. Still, aquatic resources and procurement technologies are often poorly visible in the archaeological record. Therefore, knowledge about the importance of fish in prehistoric subsistence is often quite uncertain.

This session aims to deepen current knowledge within the framework of local, supra-regional, and diachronic development and application of active and passive fishing technologies in the harvesting of aquatic resources as well as other linked activities. Where direct evidence of fish utilisation is insufficient, various forms of indirect evidence are employed. Settlement patterns, site location, fishing technology, and resource specialisation reflect the utilisation of fish as a food source, or as a source of raw materials. Therefore, apart from studies utilising archaeological fishing-related materials, we would also like to encourage researcher contributing studies applying analogous data, from the viewpoint of, e.g., ethnography, anthropology, and ethnohistory to help build the frames of reference and further our understanding about fishing as a phenomenon and its longterm dynamics.

TH1-20 Abstract 02
Discontinuities in fishing practices at the onset of Neolithic: a case study from Starcevo

Author - PhD candidate Živaljević, Ivana, Laboratory for Bioarchaeology, Belgrade, Serbia (Presenting author)
Co-author(s) - Stefanović, Sofija, Laboratory for Bioarchaeology, Belgrade, Serbia
Co-author(s) - PhD candidate Živaljević, Ivana, Laboratory for Bioarchaeology, Belgrade, Serbia (Presenting author)
Co-author(s) - Stefanović, Sofija, Laboratory for Bioarchaeology, Belgrade, Serbia

Keywords: Early Neolithic, Fishing, Starcevo

Title:舒服钓鱼在Mesolithic西部挪威

Abstract:

Whereas the significance of fishing is well documented at a number of Mesolithic and Early Neolithic (c. 9500 - 5500 cal BC) sites in the Danube Gorges (the Danube stretch between present-day Serbia and Romania) and is corroborated by archeozoological, isotopic, and archaeobotanical evidence, this important activity has received less attention in the study of surrounding areas. The issue of determining the role of fishing is particularly relevant for the understanding of transitions from foraging to first food producing economies in the North-Central Balkans, the latter commonly associated with the Starčevo-Körös-Criş cultural complex (c. 8000 - 5500 cal BC). Exploitation technologies might express group identity, and provide insights into contacts and communication between different fishing societies. Still, aquatic resources and procurement technologies are often poorly visible in the archaeological record. Therefore, knowledge about proportion and importance of fish in prehistoric diet is often still quite uncertain. Fishing tackle, either passive gear like nets, basket traps and weirs or active gear such as hooks, line spikers, spears, leisters and tridents are relatively simple constructions, which change little over time and are widely distributed. In other cases equipment is made from prestigious material (e.g. bronze fish hooks), and large amounts of building materials are required (e.g. for fish weirs). This session aims to deepen current knowledge within the framework of local, supra-regional, and diachronic development and application of active and passive fishing technologies in the harvesting of aquatic resources as well as other linked activities. In locations where direct evidence of the utilisation of fish is insufficient (e.g., because of the poor preservation of fish remains and fishing-related artifacts), various forms of indirect evidence are employed. Settlement patterns, site location, fishing technology, and resource specialisation may be seen as forms of indirect evidence of the utilisation of fish as a food source either for immediate or delayed consumption, or as a source of raw materials. Therefore, apart from studies utilising archaeological fishing-related materials, we would also like to encourage researcher contributing studies applying analogous data, from the viewpoint of, e.g., ethnography, anthropology, and ethnohistory to help build the frames of reference and further our understanding about fishing as a phenomenon and its longterm dynamics.

TH1-20 Abstract 03
Comfortable fishers in Mesolithic western Norway

Author - Prof. Bergsak, Knut Andreas, University of Bergen, Bergen, Norway (Presenting author)
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Co-author(s) - Fishbones, Fishing gear, Settlement patterns

Keywords: Comfortable fishers, Fishing gear, Settlement patterns

Title:舒服钓鱼在Mesolithic西部挪威

Abstract:

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

Fish constitute a significant source of essential nutrients in the human diet. Over time, people around the world have developed numerous different methods of obtaining vital nutritional elements from aquatic environments. Eels, with their substantial content of fatty acids, vitamins, and, not least, fat, are an example of an aquatic food source that has been prized in many parts of the world for millennia. Numerous different fishing methods have been employed, founded on observations of the mystical behaviour of this fish. Its remarkable biology did not begin to be understood until the 20th century and there are still some unanswered questions. The fishing methods and equipment required to catch eels, both on a daily basis and in large quantities as stored provisions, were developed on the basis of experience and oral traditions, handed down from generation to generation. In a Danish context, written sources such as law texts and ethnological evidence can provide information that is useful in interpreting prehistoric eel-fishing strategies. Ethno-historical sources support evidence from studies of prehistoric wood suggesting that Stone Age people systematically managed the surrounding forest to obtain building materials of an appropriate quality and in the required quantities for their fishing structures in the sea.

Archaeological and archaeozoological data show that eels have been part of Danish food culture for the past 8000 years. In 1988 and 1999, remains of fishing structures dating back between 4500 and 7000 years were investigated. These archaeological structures were interpreted as so-called bålgård – eel weirs, which the fisherman of historical times built on the coast and out into the sea. They were used to catch the shoals of silver eels which then as now, migrated each year from Baltic and Danish waters to the Sargasso Sea to mate and reproduce. This interpretation provided grounds for examining a number of different ethno-historical source categories from Danish museums and archives in order to assess information on construction methods, choice of materials, and landscape use in relation to the corresponding prehistoric structures. According to a Danish adage, it’s hard to catch an eel by its tail. This paper presents diachronous Danish examples showing how the skill, craftsmanship and know-how of the Stone Age fishers, in relation to the manipulation of both marine and terrestrial resources targeted at catching the ‘tricky’ eel with its high nutritional value, were apparently passed down from generation to generation until the demise of this activity in the mid-20th century. But everything has its price! Some Danish sources reveal how people risked both life and limb when fishing from stationary structures during autumn and winter storms. Still eels are a much sought-after and highly prestigious food source in many parts of the world. Danish eel stories, from museums and archives, reveal how the people of Denmark have, since the Stone Age, employed special methods, ranging from almost childishly simple tools to complicated wooden structures stretching out into the sea, to ensure that the strong eel ended up making a valuable contribution to humankind.

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

Author - Dr. Klos, Stefanie, Archäologisches Landesamt Schleswig-Holstein, Schleswig, Germany (Presenting author)

Keywords: Baltic Sea, fishing, Mesolithic

Presentation Preference - Oral

A common fishing tool of Final Mesolithic (Ertebølle) and Early Neolithic coastal sites at the Baltic Sea is a specialised spear. This spear for active fishing was constructed with two wooden leister prongs and a bone point in the middle, which were fastened on a long straight handle. On underwater and wetland sites at the German Baltic Sea coastal wooden leister prongs, which were very well preserved, were excavated during the years 1996 to 2008. Archaeological and dendrochronological investigation of leister prongs will be presented in this talk supplemented by ethnographic examples and ancient finds of other time periods. The fish bone data and ethnographic comparison points to the fact that eel (Anguilla anguilla) was caught with spears despite very similar iron tools are known from 19-20. century from the Baltic Sea region historical development of this fishing gear has large gaps in the archaeological sources.

The production method of Ertebølle and Early Neolithic leister prongs could be reconstructed with the help of several unfinished tools that show characteristic cutting marks at the tips and the shafts. The tips of the finished fishing gear can either be elongated and pointed, or short and rounded. These differences are most likely due to their respective use on muddy 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 (Malusae) and red dogwood (Cornus sanguinea), as well as the flexible and common hazel (Corylus avellanea). A few other types were used very rarely. The proportions of material used show regional and chronological differences, as certainly a result of which resources were available.

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

Author - Luebke, Harald, ZBSA Schloss Gottorf, Schleswig, Schleswig, Germany (Presenting author)

Keywords: boreal, eel, Mesolithic, Northern Europe, wooden leister

Presentation Preference - Oral

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

New research in this area started in 2010 in close cooperation with a local amateur archaeologist, resulting in a large collection of Mesolithic and Early Neolithic bone and antler tools. Excavation on the inland in 2012 has brought to light wooden objects from stratified context as well: part of an eel trap and a tool handle with preserved resin showing imprints of a binding material, which are dated to c. 8200–8600 BC. The wooden leister prong from Sise is the oldest find of this tool type up to now in the Baltic region. The present paper will give an overview of the chronology and distribution of this tool type in the Baltic region.

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

Author - Dr. Kashina, Ekaterina, State Historical Museum, Moscow, Russian Federation (Presenting author)

Keywords: final Stone Age, fishing gear, North-East Europe

Presentation Preference - Oral

State Historical Museum, Moscow, obtains the largest collections of Stone Age artifacts in Russia, among them occasional finds, old and modern excavation materials are present. I will review different groups of items concerning sedentary hunters’ fishing gear dated IV–III millennium BC(such as dugouts/roboats, bark/skin canoes (studied by clay sculpture), wooden paddles (bark/skin preserved in particular sites layer), stone anchors, special bone points, fish hooks, fishing nets (studied by multiple imprints on ceramic vessels inner surface) and small sculptures of fish species (made of bone and flint). The main conclusions and problems of fishing gear investigation are discussed.

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

Author - Kajutė, Paeckis, Vilnius university, Faculty of history, Vilnius, Lithuania (Presenting author)

Keywords: tree species, wooden land

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 (2006-2015), new sites located in abandoned Bronze Age (2000-500 cal BC) river channels and containing rich cultural layers with a wide range of artifacts and wooden fishing structures were added to the wetland archaeological complex. Until recently tree species of wooden artefacts found during the excavations at Šventoji were rarely identified, and then using mostly macroscopic evaluation. Fragmental data, in some cases collected using unreliable
Interpreting the Archaeological Record

TH1-20 Abstract 09

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

Author - Gedžauskas, Lukas, Vilnius University, Vilnius, Lithuania (Presenting author)

Keywords - archaology, environment, foraging, lithics, origins, prehistoric, Subnecolithic.

Salmo salar

TH1-20 Abstract 10

Back up the fraile 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)

Keywords - archaeology, environmental, foraging, fish, lithics.

Coregonus lavaretus

TH1-20 Abstract 13

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

Author - Andrés Carlo, Colón, University of York, York, United Kingdom (Presenting author)

Keywords - archaeology, culture, catch, historical, living.

TH1-20 Abstract 11

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

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

Keywords - archaeology, environment, foraging, fish, lithics.

TH1-20 Abstract 08

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

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

Keywords - archaeology, environment, foraging, fish, lithics.

TH1-20 Abstract 12

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

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

Keywords - archaeology, environment, foraging, fish, lithics.

TH1-20 Abstract 14

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

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

Keywords - archaeology, environment, foraging, fish, lithics.
What is the role of cultural heritage for poverty alleviation in coastal areas of Latin America? Along the coastline of Brazil, small-scale fisheries are a traditional and crucial source of food and livelihood for thousands of people. Brazilian coastal communities efficiently integrate modern small-scale fishing techniques with pre-colonial indigenous knowledge, as a ‘neotraditional’ mix. In the coastal areas of Maranhão (northern Brazil), this culminates in the use of historic fish traps (locally known as camboas), built by indigenous populations likely before the European Encounter. We will present the results of a multidisciplinary research effort aimed at exploring and documenting the contribution of this coastal cultural heritage to food security and community livelihood in one of the poorest areas of Latin America. The results offer some insights into the role of archaeology and historical ecology for mitigating poverty in coastal areas of Latin America.

Keywords: Latin America, Poverty alleviation, Pre-Columbian fish traps
Interpreting the Archaeological Record

TH1-21 Abstract 02
Early medieval sites with funeral cremations in the North-West of Eastern Europe

Author - Mikhaylova, Elena, St. Petersburg state university, St. Petersburg, Russian Federation (Presenting author)

Keywords: early Middle Ages, Eastern Europe, funeral cremations

Presentation Preference - Oral

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 barrow burials of the 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 barrow burials of that period reflect both the tradition ofConnorian and Prussian burial rites, marked by the appearance of the ethnic phenomenon of Connorian "collective" cremations or Sambian "Aschenplätze" and even cremation graves, supported by the horse burials/sacrifices, the Galindian cemeteries are different. Such cemeteries as Szipuly or Nemiczowice represent human cremated remains in form of small burned bone pieces and scattered with fragmented articles. The depth of the latter is about 0,2-0,3 m. Their investigator Wójcik-Wróblewski named them "the cemeteries without graves". There only few archaeological sites of a partially similar origin are known nearby, as Kröcken in the South Prussian area. Furthermore attention is dedicated to the Western Balts suspected female and adolescent cremations, graves with arms, imported goods and even evidence of burial as if 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, Semogians and Central Lithuania tribes is also discussed here.

TH1-21 Abstract 03
Cremations in Shekshovo: new evidence of the Viking Age burial rituals in Central Russia

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

Co-author(s) - Makarov, Nikolai, Institute of Archaeology of RAS, Moscow, Russian Federation

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

Presentation Preference - Oral

Cremation is known as a dominating funerary ritual in the Upper Volga in the IX-X-th cc, however present knowledge of cremation practices in this region in the Viking Age is based mainly on the documentation of the burial urns excavated in the 1960-1980s and in the earlier times. Recent investigations in Shekshovo burial site not far from Suzdal, provided with the implementation of modern excavation techniques (2011-2015), opened new research perspective, revealing important aspects of cremation ritual and transition from cremation to inhumation after conversion to Christianity1. Field investigations in Shekshovo produced evidence of coexistence of Prussian "Aschenplätze" and Connorian "collective" cremations of the 11th-15th century could possibly have a common social background. They probably indicated emergence of new, not family based, "professional" relationship as warrior elite. Social values were most probably reflected in the burial of the persons of the two different groups: Connorian "male" cremations and Prussian "female" ones. The question of probable female cremation graves in this region is very disputed, their size and location are similar to Connorian cremations. However, the only few cases of female cremation graves of this origin are known in the Kholmogory area. Furthermore, attention is dedicated to the possible female burials and female artefacts present in the Shekshovo cemetery. The investigation of the shekshovo cemetery is expected to provide additional information on former woman use for fuel. Additionally for the study of the cultural contact from Broechem, attention will be paid to possible differences in fuel selection between the different types of cremation graves.

TH1-21 Abstract 04
Cremated remains and funerary rites at the Merovingian cemetery of Broechem, Antwerp (Belgium)

Author - Annaert, Rica, Flemish Heritage Agency, Brussels, Belgium (Presenting author)

Co-author(s) - Lantacker, An, Flemish Heritage Agency, Brussels, Belgium

Co-author(s) - Quinteiser, Kim, Flemish Heritage Agency, Brussels, Belgium

Co-author(s) - Deforce, Koen, Flemish Heritage Agency, Brussels, Belgium

Keywords: cremation, interdisciplinary research, Merovingian cemetery

Presentation Preference - Oral

This paper discusses the preliminary results of the anthropological analysis of the human cremated bone excavated at the Broechem cemetery and sheds light on early medieval funerary practices in the Schiltz valley in Belgium. The cemetery was excavated in 2001-2003 and 2007-2010 by the predecessors of the Flanders Heritage Agency. The funerary ensemble includes 442 inhumation graves and 71 cremation graves. Two groups of cremation graves are present. One group is situated in the northern part of the cemetery, which is the oldest section of the cemetery with deposits dating from the second half of the 5th to the first half of the 6th century. This cluster of cremation graves is characterised by big pits with a lot of charcoal and early finds from the 5th century, some with Germanic influences. One urn deposition and one 4-post grave house are to be mentioned. The second group is scattered all over the cemetery and is dated in the same period as the inhumation graves in sections (second half of the 6th till the second half of the 7th century). The funerary structures consist mostly of so-called Brandgrubengräber or Knochenlager. The osteological analysis aims to provide a detailed description of the nature of the deposits, to identify the cremated remains of the human and animal cremated bone, to assess pathological changes, to identify any evidence of pyre technology (used during the cremation process) and presence and type of grave goods. The analyses of osteological and other dendrochronological characteristics observed in the charcoal fragments is expected to provide additional information on former word use for fuel. Additionally for the study of the cultural contact from Broechem, attention will be paid to possible differences in fuel selection between the different types of cremation graves.

TH1-21 Abstract 05
Funeral cremation of the Middle Oka region from the Great Migration Period to the Viking Age

Author - Dr. Syrovatko, Alexander, Municipal budget organization "Kolomna archaeological center", Kolomna, Russian Federation (Presenting author)

Keywords: cremation, The Great Migration period, Viking Age

Presentation Preference - Oral

Many variants of the funeral rites were distributed rite in Eastern Europe during the second half of the 1st millennium AD. These centuries' burial sites of the Moscow region were unknown until the last years. Systematic studies of these cemeteries have been done done over the past 15 years only. All known burials are opened in the Middle and Upper Oka river, from Kolomna to Sergievsk, Moscow region. The uniqueness of these cemeteries lies in the fact that they were not detected for a long time. Thus, it is expected to provide additional information on former use for fuel. Additionally for the study of the cultural contact from Broechem, attention will be paid to possible differences in fuel selection between the different types of cremation graves.
recognized. The human bones and animal bones are present together constantly. In some burials, animal bones predominate. During studies it was determined the sex, the age of the buried, the temperature of burning. In some cases, it was possible to detect 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.

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**THI-21 Abstract 06**

**Folk from “Lodges of the dead”**

(on the burial sites of the Russian North in the first millennium AD)

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

**Keywords**: Lodges of dead; archaeoethnographical approaches, cremations

**Presentation Preference** - Oral

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

These archaeological sites of the Mologa-Sheksna interflue (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 “lodes 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, Kurevanikha XIV, Kurevanikha XVI were used in this research. Materials were examined with the help of macro and micro analysis. All cremated fragments were verified by color, weight, number, high temperature cracks and deformations. Clear anatomically fragments were used to determine the sex and age of the individuals, and to detect the presence of animals. All clear anatomical fragments were recorded in archaeological plans.

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

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

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NII Nr 235. – S. 323-331.

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**THI-21 Abstract 07**

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

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

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

**Presentation Preference** - Oral

The study of funerary monuments of the Novgorod land was started in the middle of the XIX century and continues to this day. In total, about 10,000 different types of burial constructions were excavated. The investigations demonstrated that in the Xv-th century throughout the Novgorod land cremation prevailed. The adoption of Christianity at the end of the Xv-th 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 Xv-th 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 number of cremated burials in the Old Russian barrows of the Xv-th century were excavated in the west part of Novgorod land. This group of burials has never been the subject of a special study for archaeologists. In the field reports and publications they have been interpreted as “a relic of paganism” without any arguments.

Micro-topography analysis of the cemeteries shows that such mounds with the cremated remains were not separated from the other mounds and located in the early part of the burial groups. The mounds with cremations and the mounds with inhumations of the same period are identical externally and internally. Simultaneously the cremated remains are quite different from the cremations of earlier times (for example, the Culture of Long mounds, Sopka culture, etc.) in size and in the degree of burning. The remains were scattered on the bottom of the burial pits, their size and shape are very similar to the inhumation graves. Finds (knives, iron weapon’s heads, coins) are rare in the analysed group and located like in inhumation graves. The subjects typical for female costume have not been found yet. It is important to emphasize that the found things have no trace of a fire.

 Mentioned peculiarities give us an opportunity to clarify the fact why Christian burial canons was disrupted. Probably the cremation was the only possible way to deliver the body to the family cemetery, where the deceased is buried according to relatives’ opinion. Perhaps the death came far away from home in a military campaign, hunting expedition or commercial travels. In this case other participants of expedition (relatives and/or neighbors, people who knew the deceased/victim well) had to bring the body to the relatives for burial at home.

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**THI-21 Abstract 08**

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

**Author** - Dr. Veicius, Gintautas, Vytaus University, Vilnius, Lithuania (Presenting author)

**Keywords**: burial tradition, cremation, underwater graves

**Presentation Preference** - Oral

At least three underwater burial sites with cremated graves from to the 14th century have been investigated in Eastern Lithuania. In recent years, the cremation graves were discovered close to Kernave town of the 13-14th centuries. In the dried stream watercourse about 13 kg of cremated human and animal bones, pottery and metal artifacts 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 deposition in water was a long – time tradition or was it only the consequence of important historical events? Burial rituals in the water were not mentioned in the historical, mythological or folkloric sources. Cremation graves in water are also unknown in the broader chronological and geographical contexts. So, bearing in mind the longevity characteristic to funeral traditions, the water burial rituals (which were practiced comparably briefly) forces us to look for unconventional causes of this phenomenon.

Today’s research methodologies do not allow us to state the water burial could be a heritage of earlier tradition.

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

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**THI-21 Abstract 09**

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

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

**Keywords**: late Roman period, Southeast Baltic, urn cremation

**Presentation Preference** - Poster

The cremation was the prevalent burial rite since Roman times and early Middle Ages in Western Baltics. In this regard it should be noted that the development of new approaches to the study of cremation urns is 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-Natugian archaeological culture) discovered by Sambian expedition Institute of Archaeology in recent years. Most of the vessels were disturbed, so we cannot...
reconstruct the sequence of packing urns by bones and a grave goods. Often fragments of cremated bones are located out of vessels (above, from the side, spread over the site). Bioarchaeological approaches contribute to understand the causes of these locations (taphonomic changes and so forth.)

Romanov-Pugaoshch pond - one of the monuments, which was opened recently in the Zelenograd district of Kolningrad 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) burial;
- 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 16-06-00058.

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

Author - Birkina, Moscow, Russian Federation (Presenting author)
Co-author(s) - Syrovatko, A.S., Kolomna archeological center, Kolomna, Russian Federation
Keywords: burial ground, cremation, Middle Oka
Presentation Preference - Poster

Multivariate of funeral rites of the Late Roman period - the Early Middle Ages in the central part of European Russia (Moscow region) are not studied in detail. 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 archeological site is located on the first terrace of the right bank of the Oka (the middle reaches of the river) near the Kolomna town. There are kurgans and ground graves with cremations on this site territory. Systematic excavations take place since 2001 by Kolomna archeological center expedition (A.S. Syrovatko). According to the dating of the grave goods the site existed from VI till X cc. Ground graves with cremation is more late type of burials and associate with IX-X cc. The batches of the burned bones in pits and diffusely cremated bone fragments scattered on the ancient surface are variants of the individual burials. Only a few cases are placed in the pits. In 2013, well preserved burial pit has been discovered among others during field archeological work. The bones of this burial were studied in detail. The number of fragments, size of the fragments, the color and weight, deformations and cracks were estimated. The color is invariable, light-grey. According Walker-Miller data 2, the bone remains are burned and subjected to "heavy weight" of all individual burials in the Middle Oka.

The total weight of the bones burial was 10470 g (NB - average weight of a single burial of about 500 g). The grave goods are typical for this site. Most part of the fragments (8075 g.) is indelible. Nevertheless, we could estimate anatomical position of the 8 fragments from different part of skull and postcranial skeleton of the adult human (20-30 year, the sex is unclear). The mass of these fragments is about 32 g. Cremated bones (273 fragments, 1762 g.) of large and small mammals have been identified besides human bones. Thus, this is the extraordinary burial. We offer two versions of interpretations:

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

1 Syrovatko A.S. Burials with cremations on the Middle Oka River of the second half of the Il millennium AD//Russia Archeology 2014.v.4. p. 63
THI-23

MESOLITHIC DWELLING STRUCTURES: FROM
METHODOLOGICAL APPROACHES
TO ARCHAEOLOGICAL INTERPRETATION

Thursday, 1 September 2016, 09:00-13:00
Faculty of History, Room 331

Author: Luisa Solana, University of Rennes 1, Rennes, France (Presenting author)
Co-author(s): Marchand, Gisèure, CNRS/University of Rennes 1, Rennes, France
Keywords: Mesolithic, Dwelling, Mesolithic, Settlements, Spatial analysis

The study of Mesolithic settlements is a key issue to understanding the articulation of a social and economical system that lasted for several millennia and its collapse. Analyzing the spatial organization of settlements increases our knowledge on activity areas, subsistence strategies, seasonality of occupations and social organization. One of the most informative aspects is the interpretation of their functions often leads to heavy assumptions (mobility system, storage, social hierarchy). The passage of these archaeological facts to their interpretations is obviously a crucial phase of our works, we need closer monitoring.

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

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

THI-23  Abstract 01

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

Author: García-Piquer, Alberto, Autonomous University of Barcelona, Barcelona, Spain (Presenting author)
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Keywords: Ethnoarchaeology, Mesolithic, Shell-middens

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

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

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

THI-23  Abstract 02

Mesolithic dwelling space in an interdisciplinary perspective

Author: Res., Associate Gryn, Ole, Norwegian Maritime Museum, Oslo, Norway (Presenting author)
Keywords: Dwelling, Interdisciplinary, Mesolithic

This paper discusses the authors’ development of an empirically based approach for analysis of the Mesolithic use of dwelling space based on theory, concepts and data from mathematics/physics, experimental social psychology, social anthropology as well as archaeology. The underlying assumption is that the space of hunter-gatherer dwellings is organised in accordance with culture-specific patterns so that the general positions of the individuals in a specific culture reflect their age, sex and status.

One focus is the merging of theory from several disciplines into one theoretical context. Another is the involved disciplines’ reaction on such a merging.

THI-23  Abstract 03

Early Mesolithic site space in western Norway

Author: Dr. art. Aar, Arne Johan, Museum of archaeology, University of Stavanger, Stavanger, Norway (Presenting author)
Keywords: Dwellings, Lithic dispersal patterns, Norwegian Early Mesolithic

It has been hypothesized that western Norwegian Early Mesolithic sites are characterized by a standard lithic tool inventory with a uniform spatial configuration of the lithic debris. Specific lithic dispersal patterns are associated with both dwellings and “open air sites”. The dwellings are mainly identified as tent rings of stone cobbles and with associated fireplaces and lithic debris.

These features have been suggested as indicative of the early Mesolithic way of life as mobile hunter-fishers being present in both coastal and mountain areas. Presumably the lithic dispersal patterns primarily seems to be the remains of activities performed by a single individual. But it also raises the apparent question concerning lithic tool sharing. Site evidence at the transition from Early to the Middle Mesolithic seems to indicate a change and different site pattern due to changes in the spatial configuration of activities related to the lithic debris.

Early Mesolithic sites in general, are small sites and among the few sites which it is realistically possible to analyse site structures and patterns on an individual spatial level. However, lack of identified structures makes a continued discussion concerning identification of dwellings through their relation to lithic dispersal patterns important.

More discrete site analyses are needed through a consideration of site characteristics, excavation methods and lithic technological, functional and spatial features, in order to analyse trends in Early Mesolithic site spaces. Aspects of this culture-historical development and methodological challenges will be discussed.

THI-23  Abstract 04

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

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We have been able to distinguish fine deposition sub-units and to identify discrete periods of occupation time. There were different dynamics, activities distribution and management of space in apparently very similar sites. In Tynel-VII site there were at least ten discrete re-occupations in different seasons, whereas in Lanasahue only one (maximum two) long occupation period have been registered.

A shell-midden is thus not necessarily a homogeneous block of sediments and the variability inside can be very significant of the economic and social system that produced it. Experimental ethnoarchaeology is a useful tool, providing guidelines for excavating and explaining similar archaeological sites around the world. For example, Mesolithic Atlantic Europe shell-middens have been described as residential or logistical based on their size and thickness, or on the amount of remains and sometimes considered sedentary settlements based in averaged samples. But similar middens may be the result of different strategies of occupation. We need to develop specific methodology, maximize and adequate techniques of excavation in order to reconstruct the social organization behind the processes that formed each shell-midden.
Back to Beg-er-Vil: from taphonomy to spatial analysis of a mesolithic dwelling in Atlantic France

Author - Marchand, Ogregor, CNRS, Rennes, France (Presenting author)

Keywords: Dwelling, Mesolithic, Spatial Analysis

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

New insights into open-air Mesolithic settlement in northern Spain.

Recent research at El Alloro

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Keywords: Asturias, Dwelling structures, Settlement

Presentation Preference - Oral

The dearth of direct evidence on the settlement areas and particularly on dwelling structures has traditionally been a serious challenge for the understanding of the Mesolithic of northern Iberia. Recent research is contributing to overcome those difficulties. In 2013 we started a systematic survey of open-air settlements in an area with a high density of cave sites, the region of northern Spain coast where the classic “Asturian” facies is located. It included geomorphological analysis, magnetometry survey, sedimentology cores and archaeological excavations. Among the most outstanding results, an open-air Asturian site was located near the cave of El Alloro (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.
Interpreting the Archaeological Record

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TH1-23 Abstract 09
Can pits define a settlement?
One example from inland Iberia Mesolithic

Author: Gaspar, Rita, Porto, Portugal (Presenting author)
Co-author(s): Carrondo, Joana, Porto, Portugal

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 archaeobotanic remains. One pit presented a human burial.

Throughout Europe pits have been found in several Mesolithic sites and their interpretation has been a matter of debate. Interpretations range from storage structures to hunting traps. Considering the amount of pits that were found and the interdisciplinary approach carried out in their investigation, Foz do Medal can be a very important site in such debate. Furthermore the excavation provided relevant data regarding subsistence strategies and the use of bothic and abiotic resources.

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

Author: Dr. Ospowicz, Gregorz, Nicolaus Copernicus University/Institute of Archaeology, Torun, Poland (Presenting author)
Keywords: Mesolithic, Poland, Spatial analysis

The presentation will discuss the results of the interdisciplinary and multifaceted studies, which were subjected to three Late Mesolithic camps from the area of central Poland: Basienecko 4 and Ludowice 6 (eastern and western habitation). The studies included: soil, geomorphological and hydrological analysis of the sites area, archaeozoological and taphonomical analysis of the bones, palynology, AMS dating and multithreaded analysis of stone artifacts, including: petrography, technology, refitting and soil, geomorphological and hydrological analysis of the sites area, archaeozoological and taphonomical analysis of the bones, palynology, AMS dating and multithreaded analysis of stone artifacts, including: petrography, technology, refitting and the use of other types of structures, such as post holes, hearths and hut floors. Nevertheless pits dominate the settlement area. Its contents were analysed by a multidisciplinary team, revealing lithic industry, faunal and archaeobotanic remains. One pit presented a human burial.

Throughout Europe pits have been found in several Mesolithic sites and their interpretation has been a matter of debate. Interpretations range from storage structures to hunting traps. Considering the amount of pits that were found and the interdisciplinary approach carried out in their investigation, Foz do Medal can be a very important site in such debate. Furthermore the excavation provided relevant data regarding subsistence strategies and the use of bothic and abiotic resources.

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

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Keywords: cognition, metrology, trade

The discipline of ancient metrology is generally considered to be a difficult subject and weighing equipment is often not sufficiently discussed in publications. If the evidence has indeed been recognised at all. One of the aims of this session is to promote such studies and to demonstrate its relevance for many key issues of the human past, among them cognition, trade and economic integration, mathematical conception and socio-economic organisation. The time is past due to disseminate the relevance of weights and measures, especially because the identification of such tools often allows for a considerable reinterpretation of the cultural context in which they appear.

We will highlight some of the problems and challenges we have to face when studying (potential) weights, scales or weight-regulated artefacts. Issues we will touch upon comprise the relation of weighing to metallurgy, abstraction, standardisation, metrology, trade and traders and even to the ancient perception and description of the world.

TH1-24 Abstract 02
Normative and behavioural aspects in Near Eastern weight systems: a Case study from Ebla (Syria)

Author: Dr. Ialongo, Nicola, Sapienza University of Rome, Roma, Italy (Presenting author)
Co-author(s): Dr. Vacca, Agnese, Sapienza University of Rome, Roma, Italy
Co-author(s): Prof. Peyronel, Luca, University IUML of Milan, Milan, Italy
Keywords: balance weights, Ebla, hoards

The material remains of past cultures are conceptualizations of their creators. Artefacts associated with the application of weight standards from prehistory to the Middle Ages may be analysed in this way. Certainly, weights and scales facilitated trade and exchange, integrated different geographical spheres and cultures in economic terms and became in this way a medium in defining interpersonal and intergroup communication. Weighing is also closely connected the other kinds of measurements of concrete things as well as the conceptualization of numbers.

During this session we would like to raise the following topics:

• When emerged the concept of weighing and under which circumstances? How closely was it related to the increasing importance of metallurgy?
• Whether and to what extent weighing units were abstract concepts?
• Why were certain shapes of weights chosen and preferred in certain regions and periods?
• How were various weighing systems constructed and how were they then transformed through time? Can we really define the origin and end of the use of specific weighing systems and units?
• What are the contextual associations of weighing equipment (scales and weights)? What does this tell us about the use of these tools and the social status of the users?
• Influenced weighing systems the perception and description of the world?

We would like to invite all scholars to this workshop who analyse such issues by the study of archaeological remains.

TH1-24 Abstract 03
Metrology, trade, and the ancient perception and description of the world

Author: Rahmstorf, Lorenz, University of Copenhagen, Copenhagen, Denmark (Presenting author)
Co-author(s): Dzbyński, Aleksander, University of Zurich, Zurich, Switzerland
Co-author(s): Dr. Ialongo, Nicola, Sapienza University of Rome, Roma, Italy
Co-author(s): Dr. Vacca, Agnese, Sapienza University of Rome, Roma, Italy
Co-author(s): Prof. Peyronel, Luca, University IUML of Milan, Milan, Italy
Keywords: balance weights, Ebla, hoards

The discipline of ancient metrology is generally considered to be a difficult subject and weighing equipment is often not sufficiently discussed in publications. If the evidence has indeed been recognised at all. One of the aims of this session is to promote such studies and to demonstrate its relevance for many key issues of the human past, among them cognition, trade and economic integration, mathematical conception and socio-economic organisation. The time is past due to disseminate the relevance of weights and measures, especially because the identification of such tools often allows for a considerable reinterpretation of the cultural context in which they appear.

We will highlight some of the problems and challenges we have to face when studying (potential) weights, scales or weight-regulated artefacts. Issues we will touch upon comprise the relation of weighing to metallurgy, abstraction, standardisation, metrology, trade and traders and even to the ancient perception and description of the world.

TH1-24 Abstract 04
The role of balance weights in Near Eastern weight systems: a Case study from Ebla (Syria)

Author: Dr. Ialongo, Nicola, Sapienza University of Rome, Roma, Italy (Presenting author)
Co-author(s): Dr. Vacca, Agnese, Sapienza University of Rome, Roma, Italy
Co-author(s): Prof. Peyronel, Luca, University IUML of Milan, Milan, Italy
Keywords: balance weights, Ebla, hoards

The material remains of past cultures are conceptualizations of their creators. Artefacts associated with the application of weight standards from prehistory to the Middle Ages may be analysed in this way. Certainly, weights and scales facilitated trade and exchange, integrated different geographical spheres and cultures in economic terms and became in this way a medium in defining interpersonal and intergroup communication. Weighing is also closely connected the other kinds of measurements of concrete things as well as the conceptualization of numbers.

During this session we would like to raise the following topics:

• When emerged the concept of weighing and under which circumstances? How closely was it related to the increasing importance of metallurgy?
• Whether and to what extent weighing units were abstract concepts?
• Why were certain shapes of weights chosen and preferred in certain regions and periods?
• How were various weighing systems constructed and how were they then transformed through time? Can we really define the origin and end of the use of specific weighing systems and units?
• What are the contextual associations of weighing equipment (scales and weights)? What does this tell us about the use of these tools and the social status of the users?
• Influenced weighing systems the perception and description of the world?

We would like to invite all scholars to this workshop who analyse such issues by the study of archaeological remains.
THI-24 Abstract 04
Identifying weights in later Bronze Age Western Europe

Author - Associate Prof. Rahmertorf, Lorenz, University of Copenhagen, Copenhagen S,
Denmark (Presenting author)
Keywords: Later Bronze Age, trade, weights
Presentation Preference - Oral

In Europe, outside the Aegean, secure evidence for the use of weights is known from the second half of the second millennium. The increasing attestation of weights in Europe has been noted in recent decades by archaeologists, particularly by Christopher F. E. Parry for Central Europe, by Andrea Cardarelli and others for Italy, and Raeli Wang 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 in Iron Age

Author - Dr. Gorgues, Alexis, University of Bordeaux Montaigne, Pessac Cedex, France
Co-author(s) - Poigt, Tribaud, UMR 5608 TRACES, Université Toulouse Jean-Jacques/Université Bordeaux Montaigne, Toulouse-Bordeaux, France (Presenting author)
Co-author(s) - Comte, Florent, Free Lance Arcaictolog, Bordeaux, France
Keywords: Iberian Peninsula, Institutions, Weighing
Presentation Preference - Oral

In this paper, we would like to present the first steps of an investigation aimed at discussing the nature of metrology in a specific context of the Mediterranean Iron Age, the Iberian one. Metrology is basically an institution, whose materiality in the Iron Age is mainly linked with weighing. It can take different aspects. When based on experience, on practice and on spontaneous and mutual agreement, we can speak of a practical institution. When enforced by law, and guaranteed through the activity of magistrates, it is a formal institution that may have, much more than the first one, a secondary impact on the material record: its existence will promote normative or behavioral, as the fabrication of standardized pottery vessels.

The use of weights and scales during the Iberian Iron Age is well known and has generated an extensive bibliography. These works rely mostly in two assumptions. The first one is that weighing has to be understood on the widest frame of the trading practices connecting at this time the Iberians with others peoples of the Mediterranean area, namely the Greeks and the Punics. The second one is that the weights themselves are characteristics of a metrology having a wide range of application, including – and often predominately – 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 9th cent onward, metrology is quite coherent from one place to another. However, through the contextual analysis of the weighing instruments, we will argue that weighing is not prominently linked with long distance trade, but rather with one’s patrimony management, and was a highly performative activity.

In a second time, we will examine the evidence for normative behaviours, much sketchier. We will introduce a new analytic method allowing the direct comparison of vessel production standardization in different contexts of the Ancient Mediterranean, in order to show that Iberian practices in this regard didn’t show much preoccupation for the adequacy to any norm. The only tendency for a homogenization of the capacities seem indeed to result from the productive routines. On this ground, we will conclude, that in the Iberian context, metrology is not a formal institution enforced through legal control and public coercion, but a practical one, aimed at diminishing the transaction costs in a trade context, but at creating interpersonal trust between partners whose association went far beyond the strict economic sphere.
TH1-24 Abstract 06

Metal ingots as a medium of exchange in the Bronze Age and the Iron Age

Author: - PhD Gralak, Tomasz, Wrocław University, Wrocław, Poland (Presenting author)
Keywords: medium of exchange, metal ingots, trade
Presentation Preference - Oral

Metal ingots constituted a long-lasting phenomenon that occurred from the beginning of the Bronze Age to the late Middle Ages. They appeared at the earliest in the Sint-Michiel 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 Umfkehld complex, longitudinal ingots of bronze and tin appeared. Sometimes they contained a regular spiral construction 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 coins of wire are also known. Silver ingots, a medium of exchange in medieval Lithuania. It seems the reason for such a long use of ingots is their unique usability. They served as a source of raw material, yet remained bullion money. Their form facilitated their breaking up to the smallest pieces in order to achieve the proper weight. This method of their use facilitated relationships with communities using different weight measurement systems. They were also necessary, even if coins were available, in areas where political power was not able to guarantee and enforce their value.

TH1-24 Abstract 07

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

Author: - Tobias, Bendeguz, Institut für Archäologien, Universität Innsbruck, Stans, Austria (Presenting author)
Keywords: Byzantine, glass weight
Presentation Preference - Oral

Byzantine glass weights are essential tools of a regulated and controlled coin circulation. To understand the financial management and ultimately the Byzantine tax system of the 6th and 7th century AD they are of a great use. They are made of 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 1310 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.

TH1-24 Abstract 08

Multifaceted Head of Neck Ornaments “Perm Type”

Author: - Archaeologist Khan, Nikolay, Votkinsk Archaeological Expedition Ltd., Moskov, Russian Federation (Presenting author)
Keywords: EAANauh, 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 research for analogies, is comparative benchmarking, let still detect only similar things. In fact, many-sided fastener rings “Permian” type is half the geometric figures tetrahedron with truncated corners, which found in Hungarian antiquities originating in the territory of Bulgaria by Alexander Spilyan. It is an object against a fastener ring and a size two times greater than it.

Therefore the search for the source of a head, which said Ture Arne even have continued in Iran and the African side. Finding head of the Hungarian antiquities 9-10 centuries suggests that the rings of the Permian such as appeared in the area between the Vyatka and Kama in the ancient homeland Udmurt-Finn-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.

TH1-24 Abstract 09

A new type of weights from Volga Bulgaria

Author: - Koval, Vladimir, Institute of archaeology RAS, Voscow, Russian Federation (Presenting author)
Keywords: medieval market, Volga Bulgaria, weights
Presentation Preference - Poster

In 13-14 cc. Volga region of centuries, mysterious objects have been known. They were bronze cylinder of 2 halves on which flat surfaces are placed relief images of a lion and (and) a two with two birds. These cylinders are hollowed or filled with lead. Previously they were called matrices, seals or stamps. In fact, such weights, a large number of which were found during excavations of the market in the center of the Volga Bulgaria (the capital of Volga Bulgaria), were made exactly in Bolgar.

TH1-24 Abstract 10

Roman weights from Aquileia: Identification proposals of their ancient users

Author: - Graduated Stud. Sutto, Maria, Universit degli Studi di Padova, Padova, Italy (Presenting author)
Keywords: Aquileia, Roman weights, Weight’s users
Presentation Preference - Poster

Aquileia was one of the richest and most prosperous Roman colonies from the Republican period until the Imperial Age. It was also a very important landmark for commercial trade from its foundation (181 A.D.) till the late antiquity. The copious findings of metallic and stone weights in the different urban and rural areas of Aquileia - today sometimes hardly recognizable - are in fact meaningful proof of the city’s economic role in all the north-eastern area of the Roman empire. So some important questions have emerged: who were these Roman weights’ users? Who owned weighing artifacts in ancient Aquileia? There were certainly different users of these weights, depending on their function and their context of use. Both the iconographic, literary and epigraphic source give only few and meagre answers to these issues. Nevertheless, the weights themselves can provide more accurate hints about their uses. It is possible, for instance, to distinguish official ponders, used in public contexts, from private ponders, used inside small shops.

Speculations about the identity of the weights’ users may be suggested for some of them, thanks to the different data gathered from stratigraphic-archaeological and morphologic studies. For example, the official weights found in the proximity of the fluvial harbor of Aquileia were surely employed by magistrates sent by the central authority or by officials in charge of the measures’ surveillance. It is possible also to make some assumptions about private weights. The recent investigations in the domus located in the “ex Ossos property” in Aquileia, carried out by the Cultural Heritage Department of the University of Padua, have been an important source of information. The several stone and metallic Roman weights found there might probably be used in the commercial area of the domus, overlooking a street. The founding of these artifacts, one of them with the user’s name inscribed on its surface and possibly related to a domestic context, raises some interesting questions. Was there any relationship between the domus’ owner and the weights’ owner? If there was any, what was it? Were they the same person? Did this person carry out a guarantee role upon the weighing instruments employed in his property or was he an external tenant?

The 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.
TH1-25 Abstract 01

How do we understand animal deposits from the Roman Iron Age in the wetlands in Denmark?

Author: PhD student Pantmikk, Pernilla, Museum of Northern Zealand, Hillerød, Denmark (Presenting author)

Keywords: Animal deposits, sacred versus profane, Wetlands

Presentation Preference - Oral

Animal deposits are perhaps the most frequent type of sacrifice in Danish wetlands, and they appear in most of the prehistory. However, in Danish animal deposits tend to be overlooked compared to other finds from the wetlands, which includes precious metal objects, bog bodies and weapons etc. In contrast, our neighboring countries traditionally prioritize animal deposits a little higher. However, there is still a tendency to look upon animal deposits from a zoological point of view. In order fully to understand all aspects of the Iron Age utility of the wetlands, we have to reexamine the animal deposits and discuss their part in sacred and profane lifestyle of the Iron Age. Most importantly, we must focus on the deposits and their context, not just consider them as zoological objects but also acknowledge the animal deposits as archaeological 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 Sætpetermosen 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

Bogaren- a bog revisited

Author: Ekund, Susanna, BAI, Uppsala, Sweden (Presenting author)

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Co-author(s): Henrikus, Andreas, Uppsala Universitet, Uppsala, Sweden

Keywords: Bog body, Ritual practices

Presentation Preference - Oral

Animal deposits are perhaps the most frequent type of sacrifice in Danish wetlands, and they appear in most of the prehistory. However, in Danish animal deposits tend to be overlooked compared to other finds from the wetlands, which includes precious metal objects, bog bodies and weapons etc. In contrast, our neighboring countries traditionally prioritize animal deposits a little higher. However, there is still a tendency to look upon animal deposits from a zoological point of view. In order fully to understand all aspects of the Iron Age utility of the wetlands, we have to reexamine the animal deposits and discuss their part in sacred and profane lifestyle of the Iron Age. Most importantly, we must focus on the deposits and their context, not just consider them as zoological objects but also acknowledge the animal deposits as archaeological objects with substantial information about society, people and beliefs.

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Finally yet importantly, animal deposits contribute to the discussion about the utility of wetlands. Were their sole purpose to be marginal, mystical and sacred places or were they all that and part of the daily profane life? In other words, based on animal deposits, we should take a holistic point of view when it comes to wetlands.
Archaeological finds of human and animal remains in bogs and wetlands are random and unpredictable causing trouble for both archaeologist and antiquarian authorities. In Sweden new finds are scarce but searching museums and archives you can find numerous notes of earlier discoveries. This paper asks the question what is the potential in these old 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 a wooden platform covered with flux. Unfortunately this quite spectacular find were forgotten about and the report never written up. It’s only been referred to in some texts. We have now been able to reconstruct most of the material from the excavation that was spread out at different museum storages and we have studied the documentation. We have also dated some the human skulls and some of the animal’s bones and performed osteological analysis of the human remains. 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 space is spread out for a about 1000 years from 300 AD until 1300 AD, which is quite remarkable since it means well into the Swedish middle ages and Christian period… It’s 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 Lærlidoo ‘encampment swamp’. A pig dug out human bones with rusted pieces of iron. It seems that fighting had been so fierce that there was not enough time to bury the dead, so they were trampled into the swamp... (E 63001/2)

The aim of this paper is to introduce Estonian place-lore concerning bog bodies. This oral history is collected and written down mostly in the past, but some narratives are vital among locals also nowadays. There are different stories that describe burials, drownings, suicides and executions in wetlands: actions that may result in bog bodies. In oral tradition, there is also place-lore describing finds of human remains from peat. This refers to incidents where bog bodies were found in the past of which we do not have any knowledge based on archaeological records. In more details I show how a real archaeological find, a Rafisere 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 sacrifices. Problematising the concept of sacrifice, this paper will deal with the question of bio-politics insofar that it will look at what lives these individuals led as reflected in the skeletal remains. It also critically examines the different cultural paradigms on conservation.

TH1-25 Abstract 05
Sacrifice and necropolitics

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 conservation 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 corporal decay. The paper hopes to share current ideas about 'best practice', pointing to the vital relationship between curator and conservator, in terms of the long-term future of such internationally significant remains.
TH1-26

**THE LIFE BIOGRAPHY OF ARTEFACTS AND RITUAL PRACTICE**

*TH1-26 Abstract 01*

Taking a closer look – causewayed enclosures through the lens of a large scale use-wear analysis

**Author** - Bye-Jansen, Peter, University of Southampton, Hayling Island, United Kingdom (Presenting author)

**Keywords**: Neolithic Britain, life biographies, depositions, use-wear, Neolithic, causewayed enclosures

**Presentation Preference** - Oral

This paper presents a closer look at the phenomenon of monumentality in the early Neolithic, at a micro scale. The methodological approach is use-wear analysis of flint assemblages from selected contexts of a number of well excavated early Neolithic causewayed enclosures in southern Britain and southern Scandinavia. The UK sites include: Etton (Cambridgeshire) and Staines (Surrey), with reference also being made to preliminary analyses of assemblages from Hambleton Hill (Dorset) and Windmill Hill (Wiltshire); for southern Scandinavia, Sarup (Denmark). Results from the use-wear analysis offer a way of characterizing activities at these sites that has not been attempted before. In particular, use-wear analysis has been able to reveal some of the encapsulated life biographies of the artefacts contained within these monument contexts. By studying use-wear deposits using a biographical approach we may be able to understand better the temporality of the activities that culminated in the monuments, in particular, the narratives of ritualised practices by studying the biography of the objects contained with within monument contexts. The project has also sought to develop method in use-wear analysis, notably through the use of high-end digital microscopy technology in combination with a conventional microscope.

**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)** - Řídký, Markéta, Prague, Czech Republic

**Keywords**: Stone grinding tools, prehistoric rituals

The ambition is to create a synthesis about life biographies of artefacts from the Stone Age via practices and activities that the material culture reflects.

**TH1-26 Abstract 03**

The ritual use of flint

**Author** - Dr. Hensey, Robert, National University of Ireland, Galway, Galway, Ireland (Presenting author)

**Co-author(s)** - Dr. Hensey, Robert, National University of Ireland, Galway, Galway, Ireland

**Keywords**: Neolithic, Ireland, burial, lithics, TRB

**Presentation Preference** - Oral

From the Megalithic period onward, sometimes even up to the Iron Age, lithics are frequently found in funerary context. Evidence of ritual use of flint is known from Neolithic settlements, enclosures, ritual houses and graves. Several traditions of treatment and handing of flint such as ritual destruction, burning or scratching the surface of the artefacts were recognized. In this paper, special emphasis is placed on possible role and meaning of lithics in TRB burial ceremonies. Artefact analyses were divided in two major parts. First, the technology of production and the possible traces of use found on flakes, blades and tools were discussed. The second part consisted of statistical analysis of lithic artefact type variation and their possible relation to other grave goods. The results were then compared to the ones obtained from material from TRB settlements. This leads to the general discussion about the interpretation of role and meaning of flint in the burial context. By using such combination of methods, it is possible to discuss different reasons for placement of lithics in the burial context. Various artefacts could be interpreted either as a part of the grave goods set (accessories for further life in afterlife); the belongings of the deceased (which could signify his status or occupation during life) or traces of ritual knapping or other activities during the burial ceremony.

**TH1-26 Abstract 04**

Lithic artefact deposits in TRB burials in Jutland

**Author** - Czeczkowska, Marzena, Aarhus University, Wroclaw, Poland (Presenting author)

**Co-author(s)** - Czeczkowska, Marzena, Aarhus University, Wroclaw, Poland

**Keywords**: lithics, burial, TRB, Jutland

**Presentation Preference** - Oral

We would like to present assemblages of stone grinding tools from the late Neolithic sites (4600 – 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 fillings 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 05**

The biography of megalithic art at Millin Bay, Northern Ireland

**Author** - Dr. Robin, Guillaume, University of Edinburgh, Edinburgh, United Kingdom (Presenting author)

**Co-author(s)** - Dr. Hensey, Robert, National University of Ireland, Galway, Galway, Ireland

**Keywords**: Digital methods, Megalithic art, Neolithic Ireland

**Presentation Preference** - Oral

The megalithic monuments of Western Europe are famous for their engraved and painted decoration which adorns the walls of their chambers, passages and sometimes their external features. While most of that art was primarily created to be seen within the fixed setting of the monuments, excavations and studies in Iberia, France and Ireland have shown that a surprising percentage of this art was hidden in inaccessible parts of the architecture, or was erased from the walls, and that many decorated stones were broken and reworked before being re-employed as the structural components of new monuments. This raises at least two important questions: what was the earliest history of the decorated stones before they were placed inside the monuments? And, what was the role, if any, of such ‘un-displayed’ art in their final monumental contexts?
Interpreting the Archaeological Record

Despite the descending importance of lithic industry at the end of Eneolithic, highly attractive morphotypes – lithic arrowheads – connected with everyday life. The complex behavior associated with the rituals, but also social structure of the group, led to the from the Eneolithic graves and settlement pits. The act of placing them into the graves reflects symbolic character but is highly 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 those grave gifts were intended to express someone’s personal equipment, such as wrist guards, copper daggers or battle axes, sometimes appear in wealthy female graves, too. Arrowheads are frequently 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 axiators, 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 replications of tip fracture, practical ergonomic-ballistic features, decoration of shaft-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 war and ritualised inter-community behaviour. Warrior grave goods are accompanied by trophy artefacts in graves of some cultures; and we can suppose that the deep symbolism of trophy game hunting was closely tied with ritualised fraternalism of members in male warrior brotherhoods.

TH1-26 Abstract 07

Practical and symbolic aspects of arrowheads life cycle in Central Europe (2,500 – 1,800 BC)

Author - PhD Kanakova, Ludmila, Masaryk University - Faculty of Arts, Brno, Czech Republic (Presenting author)

Keywords: arrowheads life cycle, Eneolithic/Early Bronze Age, practical vs symbolic

Presentation Preference - Oral

Despite the descending importance of lithic industry at the end of Eneolithic, highly attractive morphotypes – lithic arrowheads – play an important symbolic communication in Central European societies. The crystallizing social class of warriors was not yet defined at vertical social stratification in the sense of warrior/power elites with their characteristic metal military – swords, shields, spears or armour parts. Lithic arrowheads are deposited exclusively in male graves, although other warrior equipment, such as wrist guards, copper daggers or battle axes, sometimes appear in wealthy female graves, too. Arrowheads are typically 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 axiators, 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 replications of tip fracture, practical ergonomic-ballistic features, decoration of shaft-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 war and ritualised inter-community behaviour. Warrior grave goods are accompanied by trophy artefacts in graves of some cultures; and we can suppose that the deep symbolism of trophy game hunting was closely tied with ritualised fraternalism of members in male warrior brotherhoods.

TH1-26 Abstract 08

Useful, beautiful or ritual?
The life biography of grave goods from prehistoric burial sites

Author - Kogalniceanu, Raluca, Institute of Archaeology, Bucharest, Bucharest, Romania (Presenting author)

Keywords: grave goods, Prehistory, South-East Europe

Presentation Preference - Oral

Neolithic communities used to send their members, on their last road, accompanied by various things, from pottery and animal bones to personal adornments, and other objects such as flint blades, axes, clay figurines, etc. The grave is supposed to be the final resting place for the human individual, but also the end-place of the objects accompanying the deceased. The analysis of grave goods usually focuses on typologies, quantities, whether they are gendered grave goods or not, and how they help create the identity of the deceased. More rarely, they focus on whether they were especially created for the particular event of somebody’s burial or they had been previously used. The work done on the Neolithic and Copper Age funerary contexts from Romania shows that, in spite of the traditional view that most objects were especially manufactured for the burials, in some cases they, in fact, had a life of their own before that. The longest chain of events in an object’s life identified so far belongs to the adornments made of Spondylus shell that underwent long-distance trade, manufacture, short-distance trade, wear, repair or transformation (or both), wear, and deposition. Another object with a medium life biography is the stone ax/adze/chisel, which could include medium-distance trade, manufacture, use, repair, use and final deposition. On the other hand, there certainly seem to be objects with a very short biography, namely those fabricated especially for the event of the burial. One example of this type seems to be illustrated by clay vessels or figurines that are poorly manufactured, indicating that their use might have been deemed from the start to be very short-termed. The presentation will review the data, with particular examples, mostly from the Lower Danube area but not exclusively, across a span of time covering the Neolithic and the Copper Age periods. I will also try to discuss the possible underlying reasons behind particular choices made by the prehistoric communities regarding the grave goods deposited to the deceased.

TH1-26 Abstract 09

Function and meaning of stones from the grave of the Globular Amfora Culture in Wilczyce (Poland)

Author - MA (Mg) Kierwed-Gubala, Katarzyna, Institute of Archaeology and Ethnology Polish Academy of Science, Warsaw, Poland (Presenting author)

Co-author(s) - Boruch, Tomasz, Institute of Archaeology and Ethnology Polish Academy of Science, Warsaw, Poland

Keywords: grave, necropolis, stones

Presentation Preference - Oral

Stones were used by prehistoric societies in everyday activities, such as preparing of food, production of other tools made of stones, flints, bones or manufacturing of paints. They also served as a weapon, symbol of prestige and were an important material for dwellings, graves and other constructions of ritual meaning.

During the neolithic Globular Amphora Culture in Poland, the role of stone as a building material for grave construction was significant. In this time numerous objects covered with the stone with stone floors, as well as with a grave goods are known. The Wilczyce site is located in southern part of Poland, in the Sandomierz Upland. The site is well known from earlier palaeoanthropological (Magdalenian) settlements, but it concerns also traces of necrotic occupation, connected with Globular Amphora Culture and Corded Ware Culture. There were few graves of this culture, where especially one is unique. It contained three human skulls probably originally situated on the stone or charcoal soil platform on the perimeter of grave pit. In the vicinity there were also...
Interpreting the Archaeological Record

This paper focuses on the unique objects found in the Mesolithic hoards. It discusses the range of materials and the methods used to analyze them. The hoards are often seen as 'unique events', but this paper suggests that they may have a more complex history. The objects may have been produced immediately prior to deposition, or they may have been reused or burnt. The study of these objects can provide insights into the social and cultural contexts of the Mesolithic period.

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

This study examines the biographies of ornaments found in amber and antler from the late Neolithic period in north-western Norway. The biographies reveal the social status and identity of the individuals who possessed these objects. The study shows that ornaments were not just decorative items, but were used as symbols of social status and identity.

Amber Disc from Daktariškė 5 Neolithic Site:

This research examines an amber disc found at a Neolithic settlement in Lithuania. The disc was studied using traseological, infrared, and Raman spectroscopy. The findings suggest that the disc was used as a ritual object, possibly as a votive offering. The research also highlights the importance of understanding the pre-depositional life history of objects in order to interpret their significance.

Ritual Objects as Offering at the Eneolithic Shrine

This study examines the role of ritual objects in a Neolithic shrine in Macedonia. The objects were deposited as offerings, and their biographies reveal the importance of these offerings in the shrine's ritual practices. The study shows that these offerings were not just isolated events, but were part of a larger chain of practices.

Other fragments of stones, probably primary being the part of these platforms or some kind of coffers (?) and grave goods in form of tiny copper tools, as well as animal bones and pottery. In the upper layer there was the skeleton of aurochs. Some of the stones have traces of primary use as grinding, polishing or hammer stones, but there are stones without any traces of use. This paper concerns on stone artefacts from the Globular Amphora Culture grave from Witzcypce and the possibilities of interpretation of their primary function as well as traces of its intentional "ritual use" and/or "use in rituals", on the base of the analysis of their spread in the grave, as well as macro- and microscopic features.

The role of chipped stone artefacts in the Late Neolithic burial practice at Alsónyék (Hungary)

This study examines the role of chipped stone artefacts in Late Neolithic burial practices in Hungary. The artefacts were 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.

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

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). These pendants are of different shapes and sizes. Of particular interest are the crescent-shaped pendants that originally formed part of larger composite ornaments. These ornaments are also found in antler in the same area. This group of ornaments stand out from the other pendants of amber in terms of shape, but also by having been created and used as composite ornaments from the outset. Whether manufactured locally or imported as finished products, the ambers also had to be imported, suggesting these ornaments were highly valued items, used for expressing both social status and identity.

Belonging to a rich and varied group of depositions from the late Neolithic and early Bronze Age in Norway, the crescent-shaped ornaments have been interpreted as votive offerings. However, this hypothesis does not necessarily provide the best tool for understanding the ornaments and their deposition. In the present study of the ornaments in both amber and antler, a biographical approach is applied, focusing on the relations tied to the objects during their life-course. Against this backdrop, an alternative view of the ornaments, their role in society and the final deposition is presented.

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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., flint and/or metal implement. 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 artifact was analyzed using both FTIR and micro Raman spectroscopy. The presence of coniferous resin and wax was identified. This investigation has proved FTIR and micro FT-Raman spectroscopy could be particularly suitable technique for non-destructive analysis of such significant archaeological objects.

There are many ways how to approach the study of history – archaeological evidences in excavation sites, dating methods, pollen analysis as well as stratigraphy of geological layers, DNA sequencing techniques for tracing migration routes, admixture analysis etc., to capture in a frame of reference physical evidences of early humans and their past. By studying physical evidence, we see close links to psychological, social and behavioral traits, as well as development of societies, evolutionary perspectives of human mind and material culture. Harder to approach are the development of linguistic capacities, cultural activities as dance and religious beliefs – cosmology and symbolism, primarily – color symbolism through prehistory. Stone Age cemetery Zvejnieki (8–5 BCE) is closely associated with the usage of iron 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 mystical and religious symbolic tribes.

The archaeological site Zvejnieki was excavated in 1960, and physical evidence of the colors that were used is no longer available. However, it is still possible to study indirectly the question about the mental and physical capacities involved, in order to recreate a span in time, where such activities as coloring a deceased family member was a valuable task to do.

In the study, the first questions to answer were weather there are naturally occurring ochre site in near proximity from burial grounds and in such case what are the material properties of ochre color and purity of the tone. Further research was directed to find out if modification of natural ochre could take place and what could be the range of colors possible to obtain from local material. At the same time information about similar symbolic behavior in other archaeological sites were studied.

During the research the ochre source minerals were found near Stone Age cemetery Zvejnieki. The laboratory analysis for characterization of the material included granulometry evaluation, color spectrum, mineral treatment in various temperatures to alter the color and different natural binders were tested. In order to compare the color variation defined by impurities in the material, iron rich minerals were collected from different parts of Latvia.

It should be noted that considerable amount of ochre color source material can be found in less than a 500 m distance near Zvejnieki archaeological site, but the colors are yellowish or brown (gohlit). Thus, the material was not directly suitable for the purpose of red burial. However, the experiments conducted confirm that it was relatively easy to alter color, if necessary, by treating material in temperature not exceeding heat of ordinary campfire to gain a consistent red color (hematite).

Overall, it can be concluded that it is necessary to carry out appropriate documentation in burial sites where the use of colors are present, for example, the chemical composition analysis. It can help to provide a valuable insight into such fine aspects of prehistory culture as symbolism.

TH1-26 Abstract 15
Color Symbolism and its Reflection in Prehistory of Latvia

Author - PhD candidate Kokins, Aliga, University of Latvia, Faculty of Geography and Earth Sciences, Riga, Latvia (Presenting author)
Keywords: color red, ochre, symbolism
Presentation Preference - Poster

TH1-27 Abstract 01
The Personal Value of Correspondence: Letters as material culture in Late Antiquity

Author - Dr. Stoner, Jo, University of Kent, Eastbourne, United Kingdom (Presenting author)
Keywords: Late Antiquity, Letters, Sentimental value
Presentation Preference - Oral

The period of Late Antiquity (approximately fourth to seventh centuries AD) has left us with a huge number of documentary texts, handwritten on 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 reconsider letters specifically as material gifts and, through reference to the theories of Mauss, Bell, Roebroek-Hatton and CalziozMenhahy, explores how their essentially handmade nature affected the creation of personal meaning and sentimental value.

The approaches taken to private letters in this paper allow these documents to be viewed once again as whole objects, reuniting texts with material form to provide a more rounded view of such sources. It allows focus to shift from elite and prestigious possessions that are at the centre of discussions of value within scholarship on this period. By assessing and evaluating the ways in which we can look at documentary texts, we can better understand the different and often simultaneously held values present within individual objects, both from Late Antiquity and material reality.
TH1-27 Abstract 02
Are Merovingian broches inalienable personal possessions?

Author: M.A. Sorg, Marion, Albert-Ludwigs-Universität Freiburg / Institut für Archäologische Wissenschaften, Freiburg im Breisgau, Germany (Presenting author)
Keywords: Dress and identity, Early Medieval, Gender
Presentation Preference: Oral

A grave from Merovingian times, recently found by chance in Leipheim (southern Germany), revealed some small finds that give us a glimpse on the possible dichotomy between the material value of a thing and the ‘real’ value perceived by onlookers at that time. It is a single grave of a man dating roughly to the late 6th or early 7th centuries AD. Buried with weapons, a silver buckle, a glass beaker, a bridle and most prominently a horse, the man’s grave furnishings range well above average for that time and region; yet, the only outstanding finds are fourteen gaming-pieces and a die. Accessories for board games are extremely rare in the - otherwise often so richly furnished - graves of the 6th and 7th centuries in continental Europe. Also, the gaming-pieces in Leipheim belong to a type not known in southern Germany so far, with the closest counterpart found in the exceptionally richly furnished burial mound in Taplow, Buckinghamshire, England. While the grave’s furnishings in Leipheim are poor in comparison to Taplow, they still adlude to the same lifestyle – which is, in short and clichéd: horse-riding warriors drinking and playing board games (or maybe rather: high-ranking men entertaining guests with drinks and games). Both the context gaming pieces are usually found in, i.e. very richly furnished graves of men, and their general rarity seem to indicate board games were restricted to a rather exclusive echelon of society. At the same time, their material value can be estimated as quite low, as both the raw materials and the skills to produce gaming-pieces – even the nicely turned Leipheim and Taplow ones – were easily available. Thus, gaming-pieces highlight how value might often not be so much in the things themselves but rather in how and 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 really mirrors their restricted use in the living society, or only representational needs that only were relevant for some funerals. The presentation aims to explore these and also some more thoughts on where the idea of board games might have come from, and why gaming-pieces were so rarely put into graves.

TH1-27 Abstract 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

Skilfully crafted dress accessories such as brooches and buckles were highly valued between the fourth and seventh centuries AD in England, and it is this value that to some extent explains frequent occurrence in graves. While their value has traditionally been considered in terms of ‘wealth’, this term has proven to carry with it connotations that are incongruous when applied to economies based more upon gifts than markets. In fact, our understanding of why these objects were valued is relatively under-developed. We might imagine that decorative and substantial personal ornaments were highly valued for a number of interrelated reasons including the materials from which they were made, the skills invested in them, the known individuals through whom the items had been exchanged, and the repeated use of these objects on a daily basis in close association with their wearers’ bodies. This paper concentrates on that final category and contends that a large part of the value of these items came from their implementation in the construction of elite and gendered identities. This usage and these values, however, were highly dynamic.

In late Roman Britain exceptionally large and decorative brooches were closely associated with high status men, but by the later fifth century this had become an exclusively feminine practice. Therafter, highly ostentatious feminine jewellery declined in the later sixth century, when a new type of gold and gemetl jewellery predominantly associated with men replaced it. Thanks to recent advances in chronicol research, an horizon of particularly richly ornamented female burials has emerged dating the latter part of the seventh century, which may well represent a final swing of the pendulum before furnished burial ceased entirely. This flop of emphasis between the bodily adornment of men and women in graves through these centuries can tell us much not only about how these objects were valued, but also about the dynamic meanings and values of the bodies of men and women through late Roman Britain to early Anglo-Saxon England. This paper explores these relationships in comparison with other regions in Europe including Western Frankia, southern Scandinavia and the Eastern Baltic.

TH1-27 Abstract 04
How much is that necklace in the coffin? Grave wealth and grave robbery in early medieval Europe

Author: Dr. Klevnäs, Alison, Stockholm University, Stockholm, Sweden (Presenting author)
Keywords: Artifacts, Burial, Early medieval

Grave robbery – a practice of reopening recent burials and taking objects from them – was widespread across early medieval Europe, peaking in the seventh century. Afflicted graves have been recorded in hundreds of cemeteries from eastern Austria to southern England. Their disorder and depletion contrast markedly with the carefully laid out and often lavish furnishing burial displays of the period. Many explanations have been put forward for the reopening practice, but common interpretations are that high-value artefacts or high-value reusable materials were being recovered from graves. This paper looks in detail at how objects in particular were taken from graves, using results from recent research (reopenedgraves.eu). It shows that a limited range of artefact types were taken, but that the selection was not based on raw materials or use value.

Many apparently highly valuable objects were deliberately left behind. What lies behind the selection? It will be suggested that the ‘life trajectories’ which could end in graves differed significantly between artefact types, especially in the degree and nature of objects’ connectedness with their owners, leading to different capacities for separation from the bodies with which they were eventually buried. An argument will therefore be made for low fungibility between many fifth- to seventh-century grave-good types: different forms of possession did not necessarily bear equivalent or interchangeable forms of value. Considerable 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, Thierhaupten, Germany (Presenting author)
Presentation Preference: Oral

Are Merovingian broches inalienable personal possessions?

Author: - Dr. Klevnäs, Alison, Stockholm University, Stockholm, Sweden (Presenting author)
Keywords: Artifacts, Burial, Early medieval

Presentation Preference: Oral

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TH1-27 Abstract 06
“Amulets” in anglo-Saxon graves

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

Anglo-Saxon women’s graves of 5th-7th century sometimes include items which have been described and discussed as “amulets”, by Audrey Meaney (1981) and others. These are not functional dress fasteners or ornaments, although they may include broken brooches, belt fittings or horse harnesses. There are also fragments of glass, pieces of Roman mosaics such as crystal, chalk or animal teeth. Some elements of necklaces such as pierced Roman or Iron Age coins can also be seen in this context. Bags containing one or more of these items have been found by Földes (2014) to be associated with girdle-hangers, and interpreted as indicators 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 98

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THI-27 Abstract 07

Value-added gold: The physical, social, and cultural re-purposing of Scandinavian bracteates

Author - Prof. Wicker, Nancy, University of Mississippi, Oxford, MS, United States of America (Presenting author)

Presentation Preference - Oral

Gold held high status during the Migration Period of the fifth and sixth centuries in northern Europe, as we learn from contemporary and later written sources such as Beowulf. Among the elite articles of personal adornment during this period were the widely distributed Scandinavian-type bracteates, which are one-sided, stamped objects that were provided with suspension loops and worn as pendants. These bracteates may have been markers of prestige to indicate gender, marital status, age, and lineage. The biography of bracteates can be traced from the mining of gold as a raw material, to Late Roman coins and medallions given as military rewards, and then to northern goldsmiths’ workshops where the coinage was melted down and made into bracteates. Thus the gold was transformed from material with economic value in one form (coins) into value in another form as personal ornaments that were distributed by gift exchange and worn by women. The significance and worth of these possessions continued to change as they were 1) given to others (perhaps bequeathed to descendants), 2) purposefully deposited into the ground in burial urns or hoards (curated and taken out of circulation), 3) melted down and re-purposed into other jewelry (permanently taken out of circulation), or 4) lost – perhaps to be rediscovered later. Subsequently, gold bracteates have been discovered by archaeologists, hoarders, 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.

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THI-27 Abstract 08

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 statuses of these notions remain largely unexplored. This is problematic, for the reason that it leaves us in the dark about what we are actually talking about and, even more important, it keeps presumptions and beliefs about the nature of the world 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 for the reason that it leaves us in the dark about what we are actually talking about and, even more important, it keeps presumptions about the nature of the world equivocal. Inspired by Deleuze, Guattari, and DeLanda, but also by Lucas, Fowler and Normark, I propose to investigate ‘value’ and ‘possession’ not as references to other abstractions, but as concepts and as such for the reason that it leaves us in the dark about what we are actually talking about and, even more important, it keeps presumptions and beliefs about the nature of the world equivocal.

Challenging the idea of the prevalence 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 ideals 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.

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THI-27 Abstract 09

Unraveling Value: Cultural Transmission Value-based Constraints among Blackfoot Ceremonial Bundles

Author - Walsh, Matthew, Aarhus University, Aarhus, Denmark (Presenting author)

Keywords: Blackfoot, Ceremonial Bundles, Cultural Transmission

Presentation Preference - Oral

Archaeologists are increasingly focused on understanding the implications of social learning on the development of material culture. Such studies seek 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 biases among proto-contact Blackfoot bundle-holders. Among the context-era Blackfoot, flexible concepts of the value of different material objects enabled individual bundle-holders to respond creatively when presented with historical, environmental, and social contingencies - and this fluidity is mirrored in ceremonial bundle materials. This study seeks to illuminate the relationships between bundle contents and their distribution in various bundle types as indicators of socially-pressured and maintained traditions. As such, we hypothesise that rules prescribing a communal value to specific bundle contents were more or less flexible depending on the level of social significance attributed to the ceremonies connected to each bundle under the assumption that the greater the overall social significance of a bundle’s associated ceremonial practice, the more constrained bundle-holders were in the development or maintenance of particular contents. In contrast, bundle-holders in possession of bundles associated more closely with personal practice were able to embellish the contents of those bundles under less-prescribed social constraints.

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THI-27 Abstract 10

My worthless preciess.

Troubles with fluctuating value of Ancient Greek vases

Author - MA Miścicki, Wawrzyniec, Jagiellonian University in Krakow, Kraków, Poland (Presenting author)

Keywords: Ancient Greece, Greek painted pottery

Presentation Preference - Oral

Estimating the value of an artifact could prove to be a difficult endeavor even if items come from societies with abundance of coinage systems like ancient Greece. This is true especially for manufactured goods, and specially for Greek painted pottery. The peculiar combination of different stages of consumption of the object, added trade value, and the low cost of raw materials, all this factors are adding up to constantly refuel scholarly debate which now runs for over thirty years. Depending on their calculation researchers estimate value of a standard piece of Greek painted ware from being almost completely worthless instrument of metal vessels to being a prestigious item and luxury commodity, to present views of just two extreme ends of the discourse. Furthermore, given the fact that Greek vases could be found all over Mediterranean their value would change accordingly. Indeed, their trade value is also being assessed with conclusions varying from one which sees vessels as being transported as ship’s ballast, a package for other goods, to the one which make pottery production a serious contributor to Greek trade. In my paper I will present theories and estimations of value of the Greek vases for all the stages of consumption, straight from the kiln up to the present day, where they rest in museums exhibitions. Give details on how these theories were created, as they often reflect different worldviews and are stretched over four centuries, as well as explain how they reflect on the studies of Ancient Greek culture. The fluctuating value of the vase not only obfuscates proper understanding and placing of object within Greek culture, but it also changes the grounds for interpreting the iconographical massage conveyed in the pot. Greek painted pottery consists of enormous cluster of scenes, ranging in hundreds of thousands which are used for studies of the ancient society. The value of the item is often pivotal as it represents the social class for which these objects were made and by which they were consumed and it allows to connect certain ideology with particular set of scenes.

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THI-27 Abstract 11

Materializing worth and value in archaeological beads

Author - Dr. Miller, Holly, University of Nottingham, Nottingham, United Kingdom (Presenting author)

Co-author(s) - Dr. Bysal, Emine, Tyhka University, Edima, Turkey

Keywords: Beads, Interpretation, Neolithic Anatolia

Presentation Preference - Oral

Despite moves in recent decades for archaeology to look beyond “form” and “function” for more esoteric meaning in material culture, there are categories of artefacts that are still under-studied and under-theorised in this way, such as beads. Understanding the socio-cultural-economic significance of beads is obscured by their general classification, through typological assessments, as ‘ornamentation’. This implies outward-looking, visually driven social practice with decorative purpose, limiting interpretation of value and worth to societies and individuals. Beads, like any aspect of material culture, do not passively impart their meaning, yet through recognizing only the visual impact of these items in archaeological interpretation, this is what we 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. Jeahe, Garson H., University Bremen, Bremen, Germany (Presenting author)
Keywords: different knowledge and social environments, globalisation and global interlacing, perception of Asia in medieval Europe

Preparation 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 lording circles. The reason for this assumption was the lack of outside information and the lack of sources. 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 the controlling of the knowledge.

With the increase of archaeological excavations the rate of finds seems much higher. 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

Preparation Preference - Oral

Until recently textiles in archaeology were studied predominantly in terms of the technology of production and the social identity of clothing. Recently 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 textile valuable, what for, by whom, and were some textiles valued more highly than others? This raises deeper theoretical concerns in understanding textiles as a specific form of valued material culture. Such theoretical concerns need to be addressed in archaeological methodologies of artefact analysis. In this paper I suggest that there are five principle ways archaeologists can recognise the value of textiles through the material record: through materials with affinities, 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.

TH1-27 Abstract 15

Fragility and Frivolity: the perceived value of 15th-16th century glass in the Eastern Adriatic

Author - Garwood, Samantha, The University of Sheffield, Sheffield, United Kingdom (Presenting author)

Preparation 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. Venetian glass in particular, the skill of the city’s glassmakers and the purity of the raw materials they used meant that the value of the glassware they produced was much higher than the comparatively inexpensive cost of silica and soda ash with which the glass was manufactured. At the same time, however, the lower monetary cost of glassware meant that members of lower social strata could afford objects of glass, and unlike more durable forms of material culture circulated at the time, part of the allure of glass was its fragility and ephemerality. Unlike more durable forms of material culture circulated at the time, part of the allure of glass was its fragility and ephemerality. Unlike more durable forms of material culture circulated at the time, part of the allure of glass was its fragility and ephemerality. Unlike more durable forms of material culture circulated at the time, part of the allure of glass was its fragility and ephemerality. Unlike more durable forms of material culture circulated at the time, part of the allure of glass was its fragility and ephemerality. Unlike more durable forms of material culture circulated at the time, part of the allure of glass was its fragility and ephemerality. Unlike more durable forms of material culture circulated at the time, part of the allure of glass was its fragility and ephemerality.

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

Preparation Preference - Oral

Metalwork from the Late Bronze Age of southern Scandinavia includes a wide range of high-quality prestige goods for personal display, ritual and gift giving. The production of these highly valued bronzes is generally understood as centred by community elites and assumed to have been carried out at exclusive workshop sites. The investment of socio-political and religious power into these prestige objects is thus typically portrayed as an outcome of ritualised and highly exotic specialised crafting linked to ritual and exclusive settings in aristocratic milieus. This reflects a common notion where exclusive objects are assumed to gain their value in exclusive settings and through exclusive skills. However, tracing the production contexts of prestige goods in the archaeological record shows that the manufacturing of these valuables was staged in many different ways, none of which seem to reflect exclusive and exotic workshops sites. Looking closer at the organisation of production of valuable craft objects shows that crafting events were staged in many different arenas. In this paper I will discuss how the organisation of metalworking can illuminate the creation of power and value of prestigious possessions of Late Bronze Age Scandinavia beyond the assumption of exclusive workshops for exclusive values. I will discuss how (1) the context and staging of production, (2) the intended bearer of the object, and (3) the citation to older objects all worked as important ingredients in the act of producing powerful possessions.
TH1-27 Abstract 17
The transvaluation of pottery manufactures in the Basque Country along the Middle Ages

Author: Dr. Escribano-Ruiz, Bergo, University of the Basque Country (UPV/EHU), Vitoria-Gasteiz, Spain (Presenting author)
Co-author(s): Azkunaga, Agustin, University of the Basque Country (UPV/EHU), Vitoria-Gasteiz, Spain

The patterns of domestic pottery consumption progressively changed over the Middle Ages in the Basque Country. Although some productions present since the 7th Century remained beyond the 15th Century, the ceramic record was completely transformed both quantitatively and qualitatively up to the point that the ceramic record of the 15th Century barely has 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 inquisition of new products, generating a progressive latent transvaluation in the ceramic record. Thus, the new also constantly 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.

Keywords: Medieval, ceramic record, distribution networks, revaluation, communication.
Fluid Fungibles: The Politics of Value in Archaeology of the Early Medieval Volga Trade

**Author:** Dr. Bringlesing, Ibaru, University of Oxford, Oxford, United Kingdom (Presenting author)

**Keywords:** Middle Ages, Trade, Value in Archaeology

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 Vikings, 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.

**Beads, Bells & Baubles: The indigenous Caribbean (re)valuation of Spanish trade goods (c. 1492-1550)**

**Author:** Keenham, Floris, Leiden University, Leiden, Netherlands (Presenting author)

**Keywords:** Caribbean, early colonial encounters, value systems

This paper juxtaposes archaeological and ethnohistorical sources to explore the early colonial indigenous Caribbean use and valuation of European introduced goods acquired through systems of barter and gift giving. Historical accounts written by European chronicles describe the indigenous eagerness to obtain novel Spanish goods as well as the pace with which such articles were absorbed into indigenous networks. The cross-cultural exchange of exotic objects effectuated the convergence, transformation, and recreation of indigenous and European material culture repertoires and value systems. In contrast to the historical accounts, which have always been an invaluable resource for studying the material dynamics of this encounter, archaeological evidence of the abovementioned processes has often been underutilized. 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 Americanized 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.

**RELIGIOUS LANDSCAPES IN THE NORTH ATLANTIC**

**Saturday, 3 September 2016, 14:00-18:30**

**Faculty of Philology, Room 114**

**Author:** Arnarberg, Jette, National Museum of Denmark, Copenhagen, Denmark (Presenting author)

**Co-author(s):** Arge, Simun; Froyar Forinnmissavni, Thorshavn, Faroe Islands

**Keywords:** Early churches, Ecclesiastical landscape, North Atlantic

**Presentation Preference:** Regular session

At the same time as the parish system was taking shape in Christian Europe – in the 10th and 11th centuries AD – Christianity was spreading among the colonists of newly settled lands in the North Atlantic. A well known characteristic of the ecclesiastical landscape of the North Atlantic islands is the high number of small churches associated with individual farms. The majority of these did not acquire parochial functions and most were closed down in the course of the Middle Ages. In their heyday, in the 11th and 12th centuries, they were however a very conspicuous aspect of the religious landscape of the North Atlantic. The study of these small churches has progressed in recent years – with comprehensive mapping and identification of such sites and several excavations – but many questions remain. A major issue is how different this pattern was from the Scandinavian and British homelands – or if it was different at all. Other questions relate to architectural influences, the use of space, location and settlement context, but also broader patterns and themes, like continuity from pre-Christian practices, medieval community organisation and ecclesiastical hierarchies, pastoral care in regions of dispersed settlements, medieval religiosity and its long-term development.

Taking its cue from the relatively well documented small-church landscapes of the North Atlantic Islands – Greenland, Iceland and the Faroes as well as the Western and Northern Isles of Scotland – this session also aims to discuss also the religious landscapes of Scandinavia, Britain and Ireland and welcomes papers addressing comparable cases and questions in other parts of medieval Christendom.

**The bishop’s grave in St. Albans Church in Odense, Denmark**

**Author:** PhD Hansen, Jesper, Odense City Museums, Odense C, Denmark (Presenting author)

**Keywords:** 11th century bishop, Odense, Old bishop - new church

**Presentation Preference:** Oral

When King Canute was killed in 1086 in the church of St Albain’s in Odense it “… was at that time the bishop’s church…” (“… tunc temporis sedes erat episcopalis”) This reference by an unknown author in a commemorative text of King Canute the Holy indicates that St Albain’s church functioned as a bishop's cathedral until 1095, when the king’s body and St Albain’s relics were transferred 75 metres to the newly built St Canute’s church. In the fall of 2015 Odense City Museums excavate a hitherto unknown bishop’s grave in St Albain’s, supporting the designation of St. Albain’s as a cathedral in 11th century. 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 archbishops 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 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 archdeacon of Hamburg-Bremen. Attempts to answer these questions are based on traditional archaeological methods as well as DNA and strontium analyses. Additionally an attempt will be made to explain why the bishop was not moved into the new cathedral together with St Albain’s relics and Canute the Holy in 1095, or in connection with, for example, Canute’s canonization and translation only five years later in the year 1100.
The Isle of Man is a small island of just 580 square kilometres, yet it boasts the remains of about 200 medieval chapels (in Manx Gaelic, ‘weelks’). In the 1930s Carl Marstrander, the leading Celtic scholar of his day, visited the island to study its many Celtic cultural and linguistic facets.

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

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

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 church sites minimally associated from settlement data 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 - Orge, Simun Vilhelm, Faroese National Heritage, Tórshavn, Faroe Islands (Presenting author)
Keywords: churches, 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 remnants of 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 a in a North Atlantic context.

Novel topographical surveys and analysis of ecclesiastical sites in the Faroe Islands
Author - Michelsen, Helgi Dal, Faroese National Museum, Hóvik, 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 bænali (Faroese for chapel). The lack of historical and archaeological data has made questions regarding the date and function of these sites difficult to answer. Nevertheless they have been used e.g. in explaining when and by whom the Christianisation was introduced. Only one of the sites has partly been excavated in the 1960s, and only two other sites had been archaeologically surveyed before 2013. To get a better understanding of the variety of ecclesiastical sites the Faroese National Museum started a surveying project in 2013. The aim is to create a platform for future archaeological work and to create a basis of comparable archaeological data to use locally and across the North Atlantic region.

The methods used in the project are a combination of topographical surveying, Georadar survey and archaeological test excavations. The topographic mapping is made by a combination of Structure from Motion (SFM) and Direct Surveying (DSM). The collected data are analysed, visualised and compared in an ArcGIS environment. This paper will present the preliminary results of the project.

The geography of a cemetery – the early Christian cemeteries of Skagafjörður, North Iceland
Author - Zoega, Guðry, Skagafjörður Heritage Museum, Saudarkrokur, Iceland (Presenting author)
Keywords: burial customs, cemeteries, churches
Presentation Preference - Oral

In the last decade early Christian churches and cemeteries in the region of Skagafjörður, North Iceland, have been the object of extensive archaeological research. A thorough regional survey has suggested the possibility of at least 120 farms with early churches/cemeteries. Of those, 15 have been further examined and four have been extensively excavated. The research indicates that these cemeteries come into being around the date of the official conversion to Christianity in AD999/1000 and that their majority was discontinued just before or after AD1114. A small number ultimately evolved into parish or communal cemeteries and in some instances churches retained their function and boundary walls were rebuilt after the cemeteries were no longer being used for burial. In their outward appearance these cemeteries seem to have been remarkably similar in size and form suggesting that from the outset, they were being managed and structured according to a particular set of laws or customs. Burial customs that have been considered an 11th-12th century development, for instance sex segregation, also seem to have been in place right from the beginning of the 11th century. These cemeteries are adding a new dimension to our understanding of the early ecclesiastical landscape in Iceland and how and when important changes may have occurred. In this paper I will explore the differences and similarities that can be found in the layout and organisation of these cemeteries and how they compare with contemporary funerary data from outside Iceland.

Hofstaðir in Mývatnsvei. An early Icelandic religious landscape
Author - Dr. Gástafjörður, Hildur, Institute of Archaeology, Reykjavik, Iceland (Presenting author)
Keywords: church, Iceland, religion
Presentation Preference - Oral

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

What is noteworthy however is that only 150m away from the church and cemetery are the remains of a substantial Viking age feasting hall (excavated between 1995-2002). The hall, which has clear pagan symbols, not in the least that its exterior was decorated with at least 23 cattle skulls, was in use for a relatively short period, constructed in the late 10th century, and abandoned by the mid 11th century.

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

In this presentation the results of the two excavations at Hofstaðir will be discussed, and placed within the context of the archaeology of early religion in Iceland in particular, and the North Atlantic in general.
Communities of death in medieval Iceland

Author: Prof. Vésteinsson, Orri, University of Iceland, Reykjavík, Iceland (Presenting author)
Keywords: church, Iceland, Medieval
Presentation Preference: Oral

In Iceland, the introduction of Christianity around 1000 AD was associated with fundamental changes in burial customs. In pre-Christian times each farm had had its own cemetery but under the new custom only about a half of the farms had churches with cemeteries. Farms without a church and cemetery are as a rule those of lower status and their occupants presumably buried their dead either in their neighbours’ cemeteries or (if different) in the cemetery of their patron or landowner. Already within the first century of Christian practice the small farm-based churches began to lose their number and the 12th and 13th centuries are characterized by their continued decline and by increasing centralisation of functions in churches which would eventually become parish centres. The paper will explore how this development, from private to communal cemeteries, reflects fundamental changes in community organisation and social structure.

Small churches” in Norse Greenland – what became of them?

Author: Dr. Annebøg, Jette, Danish National Museum, Copenhagen, Denmark (Presenting author)
Keywords: Churches and church-farms, Norse Greenland, reorganisation of ecclesiastical landscape
Presentation Preference: Oral

Greenland was settled in the later part of the 10th century when Christianity had been introduced in northern Europe. Christianity was a part of the settlers’ kit, and churches and churchyards were built on the farms from the very beginning of settlement. The churches were built close to the farmhouses, and they were characterised by their “secular” architecture, small size, and a surrounding circular, or sub-circular, enclosure. During the 13th century the early churchyards were taken out of use, as were apparently the church buildings, and a number of farms lost their status as church farms. In the same period new and larger churches were built either on earlier church farms or on newly established ones, now adapting “traditional” church building architecture known in Scandinavia. Based on archaeological excavations of “small churches” 2001 - 2010 I will explore the changes in Norse Greenlandic church building in the context of ecclesiastical and community organisation.

A World apart? Burial rites in a Scottish Carmelite Friary

Author: Hall, Derek, Stirling University, Perth, United Kingdom (Presenting author)
Keywords: Carmelites, leather shoes, wooden staff
Presentation Preference: Poster

Ongoing excavations of the site of the medieval Carmelite friary of Tulliburn in Perth, Scotland in advance of its redevelopment have located at least 300 human burial 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.

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 Strathmarn 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 scans and detailed paintings illustrating key moments in narratives of different sites. The exhibition provided a great stimulus for interpreting the site and allowed us to work with a range of and interpretive artists, from traditional archaeological illustrators to re-enactors and digital designers. The exhibition generated a series of striking and successful representations of the discoveries. This paper provides the first public opportunity to reflect on questions about authenticity, accuracy and accessibility raised by these efforts following their exposure to audiences. This paper also constitutes a step in critical process leading to the final academic publication of the results of the study.
Interpreting the Archaeological Record

TH1-29 Abstract 02
Reconstructing the Past

Author: BA Gerrit Jaco, Schilpij, Reinwardt Academy, Utrecht, Netherlands (Presenting author)

Keywords: Archaeological reconstructions, Museological theory, Open air museum

Presentation Preference: Oral

One way in which archaeology can reach back and experience some parts of ancient life is through attempts to reproduce former conditions and circumstances. By using reconstructions, visitors of archaeological open-air museums can experience what the meaning and importance of these objects was for their original creators and owners. Spread throughout Europe, there are about 300 archaeological open-air museums that have these kind of reconstructions forming their main collection.

This research will look at what archaeological reconstructions are: what the definition of an archaeological open-air museum is and how the reconstruction process of an archaeological reconstruction works theoretically from a museological perspective.

The research will give an insight into the different types of archaeological reconstructions. This can occur both in physical form and in intangible form. Each different form has its own character and method for transferring the knowledge of the past to the public. Every form has its own function or significance, and some forms are more complete than others.

Often these reconstructions are necessary to make the information of the original such as drawings and plans understandable for visitors. This is due to the visitors often not being able to interpret the information themselves. 1, 2. The presentation in form of reconstruction can, moreover, convey a sense of realism, since not only sight but also other senses are triggered during a visit to a reconstruction.

An archaeological open-air museum is a permanent non-profit institution. This is characterized by outdoor true to scale architectural reconstructions and representations of how people lived and acted in the past. It holds collections of intangible heritage resources and provides an interpretation of how people lived and acted in the past. This is accomplished according to scientific methods for the purposes of education, study and enjoyment of its visitors. Visitors of the archaeological open-air museum get, because of that a specific view on the past, a very specific story told about the daily life of everyday people. 3, 4

In this research creates a basic foundation for developing a new museological theory of archaeological reconstructions. The ultimate goal of this new theory is to improve the quality of the presentations of reconstructions in archaeological open-air museums, by creating a link between general museological theory and archaeological open-air museums.

References:

TH1-29 Abstract 03
Turves and trusses: reconstructing an early medieval building tradition in the northern Netherlands

Author: M.A. Postma, Daniëlle Groningen Institute of Archaeology, Lelystad, Netherlands (Presenting author)
Keywords: Methodology, Netherlands, Reconstructions

Presentation Preference: Oral

Archaeological reconstructions of excavated buildings are becoming a common feature in many countries throughout Europe and beyond. The value of such structures for communicating ideas about past life or even a more sustainable modern lifestyle is borne out by the fact that many have been built in open air museums or open (freely accessible) landscape settings. In professional archaeological reports too, reconstructions, or reconstruction drawings to be precise, help to convey the archaeological message to a larger audience. But what exactly is this message? And how do we ascertain its academic quality?

This paper is not intended to simply repeat best practices in making reconstructions based on archaeologically excavated building remains; these points have been outlined and discussed on numerous occasions before. Instead, the question is raised whether these reconstructions seem so closely to be adhered to in practice. Perhaps museums prioritise different aspects of academic quality?

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Chapter 1: Interpreting the Archaeological Record

The "Arty" Way - Dutch Approach to the Presentation of Archaeological Heritage

The delta of the Areuse River lies between the foot of the Jura Mountains and the northwestern shore of Lake Neuchâtel in Switzerland. Test-pitting and trenching across two-thirds of the width (1.3 km) of the upstream part of the delta, followed by excavations and the detailed documentation and sampling of the complex stratigraphies, have revealed a remarkable history of alluvial change and human occupation that covers the last 11,000 years. Over forty palaeochannels have been identified, dating from the Preboreal (c. 9000 BC) to the post-Medieval period, and since the Middle Neolithic most channels were found to contain archaeological remains.

Five reconstruction drawings representing the alluvial plain of the Areuse River during the Older Atlantic period, the Middle Neolithic, the Late Bronze Age, the Roman period and the Early Medieval period were created in order to illustrate the synthesis of the interdisciplinary study. The aim of these drawings is to visualize the evolution of environmental change and human impact in the study area over a period of 8,000 years. The presentation will focus on the criteria applied during the preparative phase of the drawings to select the archaeological periods to be portrayed and the choices made relating to the depiction of such features as angle of view, geographical scope, season, types of vegetation and human activities. In addition, the underlying environmental and archaeological data taken into account will be discussed as well as the issues of uncertainty and impression pertaining to these data, or absence of information. Finally, the composite drawing techniques used for the creation of the illustrations will be explained.

Virtual communication at the great medieval Castrum Tunsbergs

The Art of Perception in Archaeological Visualisations

When in the year 79 violent tremors pointed to something big about to happen near his house on the Gulf of Naples, Pliny the Younger nevertheless continued reading his book - and in the heat of the day, dozed off. It is a rather mundane reminder that our view of history finds direction by what we think important, yet that even past lives were lived by individual - and to past people, very present - concerns.

Most of the smaller human experiences of the past seems lost to us, yet other sensations are thought tied to places, and are recreated in landscapes and architecture. Indeed, a building may successfully copy plenty of details of past design. Yet an enthralled visitor could have only ever had one perspective: a building's interior scale determined by its walls, the appreciation of its exterior too often by the weather (and one person never under the spell of both at the same time). A 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 undermining its very opposite: reconstructions made to the dictate of data. To bring the two opposites together - whether in full-scale architectural visualisations, as reconstruction art in the media, or in future multidimensional developments - the central issue is to ask a plain question: "what did one need to know?".

There are instances where the answer has altered the interpretation of the archaeology - bringing back the focus to what might have been 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.
As Planned, as Built, as Found: Reconciling Written and Field Records at Ksar es-Seghir (Morocco)

Author - Elmi, 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 - Poster

The present study reflects the results of a multi-level forensic analysis of archaeological written records, archaeological field data (pre-2000 and post-2000), and competing interpretative models (pre-digital and digital) relating to the colonial urban outpost of Ksar es-Seghir (Morocco). The primary written record baseline was extracted from a fresh critical paleographic reading (edition forthcoming) of the protocol of survey recorded in 1514 CE by a Crown-appointed team of Portuguese architects, administrative agents, and military engineers (Arquivo Nacional da Torre do Tombo (Lisbon). Naixe 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 Abū Ya'qūb Yūsuf to Abū al-asan ‘Alī”, in Stéphane Pradines, ed., Architecture militaire du littoral, de la conquête Arabe à l'Empire Ottoman (Cairo: IFAO, 2016) and partly published as “Contours of Battle: Chronicles, GIS, and Topography—A Spatial Decoding of the Portuguese Siege of Tangier, September to October 1437”, Portuguese Studies Review 21 (2) (2013, rel. 2016): 1-135 (Portugal and its Empire, 1128-1809: A Volume of Papers in Honour of Francis Dutra J.). The resulting dataset was correlated, iteratively, in detail, and from a variety of critical perspectives, with data generated by past archaeological projects (1970s and 1980s) that had commenced with the 1974 field season, as well as 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.

Reconstructing the Form of Late Neolithic Rondels

Author - Dr. Kléy, Jacek, 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 subterranean parts – i.e. one to four ditches, and one to three inner palisade trenches. Based on an intensive research that has been going on for almost 40 years, the ideas of the original form of rondels including wooden construction parts have changed in some aspects. Most common view is that a rondel is a solid palisade enclosure further enclosed by ditches. There are two, three or four entrances to the centre of the rondel.

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

From archeology to the restoration: the reconstruction of tile stoves in the New Jerusalem

Author - Gliazounova, Olga, Institute of Archeology of RAS, Moscow, Russian Federation (Presenting author)

Keywords: 17th century, New Jerusalem Monastery, the recreation 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 stone tiles were found near the base of these ovens.

Patriarch Nikon laid the foundations of a tile business in Russia. He invited artists from different regions and from other countries. Among ovens of the 17th century, we see the ovens, the roots of which can be found in Northern Europe, Italy, different regions of Balkans, in the Trinity-Sergius Lavra, Moscow. Later New Jerusalem craftsmen formed their own original style with special local appearance of tiles. At the beginning of the 18th century Peter I sent two Swedish prisoners for the organization of the tile production in the New Jerusalem. They, apparently, were the authors of tiles with symbolic scenes. Of particular interest is the oven, lined with heraldic church and state subject.

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

Author: Dr. Žilinskas, Mikhail, Institute of Archeological Research, Moscow, Russian Federation (Presenting author)

Keywords: Use-wear, find inserts, bone, projectile points, 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 first inserts in situ in slots fixed with glue. From typological point of view the majority of them are unretouched regular microblades. Some are trimmed with fine retouch along one lateral side. Scarce inclined microblades 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 some 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. Rounded, abraded and some coarser linear traces emerged either from occasional hitting the ground when an arrow missed the target, or from contacts with other arrows transported and kept in a quiver. Traces from hitting the ground are not observed, while traces from hitting the ground and bones 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 of the shafts 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 mammal. 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 as a result of contacts of inserts with bones and other hard tissues when chipping of inserts edges happened. Use-wear at the end of bone slotted daggers showed that they were used for both stabbing and cutting some soft medium dirty material (skin and flesh of hunted animals) at different angles. Observed use-wear suggests that composite daggers were used as modern hunter’s knives combining a stabbing weapon and a butchering tool. Distinct types of use-wear observed at inserts preserved in situ in bone projectile heads and daggers will help to identify such inserts in lithic inventories of Mesolithic sites.

TH1-30 Abstract 03

The biography of an Estonian Mesolithic slotted bone dagger

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

Keywords: Biography, Mesolithic, Slotted bone dagger

Presentation Preference: Oral

Slotted bone tools are a common feature of the Mesolithic in Northern Europe. However these objects, like many osseous tools, are almost exclusively found in wetlands and therefore often have little or no contextual information, which poses significant issues when attempting to study and understand these objects. Therefore too often they languish under-researched in museum collections. In this paper we present the results of a multi-methodological analysis of the pre- and post-depositional life history of the Ubi dagger, an Early Mesolithic ornamented slotted bone dagger from southern Estonia. This dagger is unique in Europe as the only dagger with possible anthropomorphic figures. Before this analysis, very little was known about this dagger. It had been found during peat digging in the 1920’s with no associated Mesolithic finds and had only been typologically dated to the Mesolithic. By using a combination of different scientific methods the dagger went from an isolated, undated, and unique object to a tool with a complex life history extending more than 9000 years.
TH1-30 Abstract 05

Time after time - First results of typochronological analyses at Hohen Viecheln, Germany

Author - Dr. Groß, Daniel, Centre for Baltic and Scandinavian Archaeology, Schleswig, Germany (Presenting author)

Co-author(s) - Dr. Lübke, Harald, Centre for Baltic and Scandinavian Archaeology, Schleswig, Germany

Keywords: bone tools, Early Holocene, radiocarbon dating

Presentation Preference - Oral

Excavated in the 1950s, Hohen Viecheln 1, Lkr. Nordwestmecklenburg, is one of the most striking sites of the early Mesolithic in the Northern European Lowlands. The abundance of lins 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-Könighoven, Fraschek, Duvnsee, Mulerup, and Star Can, but internationally it usually is not accorded this significance. This relative obscurity seems even more surprising, given the abundance of finds made from different raw materials, but it is grounded in the site's research history.

In this presentation we will present first results of an ongoing research project on Hohen Viecheln which aims at clarifying the present state of research. By this it will be possible to adequately position the site within the Mesolithic and add valuable chronological and technological information to the understanding on osseous tool development in the Early Holocene. The re-evaluation also allows the accurate dating of the numerous bone points, for which the site is known.

The modern re-evaluation also renders possible to solve problems on the stratigraphic sequence. Due to the fact that the site represents a former shore area of the modern Lake Schwerin its stratigraphic sequence with different layers of peat, sand and gyttja is typical for overgrown lakes. The direct dating of several artefacts therefore allows us to understand when different areas were settling up.

TH1-30 Abstract 06

Not that simple! A debate about the apparent decrease of bone tools in the Paris Basin Mesolithic

Author - Post-doc. Guéret, Colas, Nanterre, France (Presenting author)

Keywords: Bone industry, Mesolithic of Paris Basin, use-wear analysis of lithic tools

Presentation Preference - Oral

In contrast to the Upper Palaeolithic period, it is widely admitted that bone industries have played a minor role in the economy of Mesolithic societies of Northern France. This fact is based on the scarcity of osseous tools and dîlagère waste discovered in the settlements and the spectacular decrease of lithic burins and benders generally associated with bone and antler working.

Nevertheless, for a long time, the archaeology of Mesolithic in Paris Basin has only excavated dry-land contexts where organic materials were not preserved. Since 30 years, rescue archaeology has allowed us to discover well-preserved sites in the valleys: evidence of osseous industries are now increasingly numerous, even if the data still remain occasional. In addition, in the last few years, the development of use-wear analysis of lithic tools gives us new informations about the place occupied by osseous remains in the archaelogy 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 under-estimate the role of antler, bone and teeth in the daily life of human communities. Finally, we will compare the situation of Northwestern European 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 tools and ornaments, archaeozoology, use-wear analysis

Presentation Preference - Oral

Vlakno cave is located on Dugi Otok (Long Island), situated in the northern Dalmatia. Systematic archaeological excavations revealed rich stratigraphic sequence from the Late Upper Palaeolithic to Mesolithic. Excavated deposits yielded tens of thousands of vertebrate remains, mostly skeleton remains of large mammals. Considering the amount of available osseous material it is natural to expect correspondingly high amount of tools made of bone, teeth and antler. Here we integrate results of archaeological analysis and the study of osseous tools. Raw material selection, technological and typological aspects were analysed. Availability of skeletal elements is compared with raw material choices. Recovered bone and antler tools show very little typological diversity between Epigravettian and Mesolithic layers. However there are some interesting small-scale temporal trends (e.g. retouchers and harpoons being almost exclusively present in older deposits). Authors debate this pattern in tool production as the reflection of environmental and subsequently subsistence changes corresponding to availability of targeted animal taxa.

TH1-30 Abstract 08

Osseous tools in the Mesolithic and Neolithic in the Iron Gates

Author - Dr. Salena, Vitezovic, Institute of Archaeology, Belgrade, Serbia (Presenting author)

Keywords: bone technology, Iron Gates region, osseous raw materials

Presentation Preference - Oral

Osseous artefacts were very important in everyday lives of prehistoric communities, especially before the invention of metallurgy. However, they were long neglected area of study, particularly in some regions of Europe. For the Early Holocene period, the region of the Iron Gates is particularly interesting, because the presence of both Mesolithic and Early Neolithic sites enables analyses of traditions and innovations in raw material selection, technological choices, etc. Related to 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, Velenjska, Krijapilje, 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, as shown in most of the Starčevo sites bone remains. Typological repertoire included heavy duty and small craft tools, rarely other types of artefacts. Certain techno-types introduced in the Neolithic sites are of Near-Eastern origin, in particular spatula-spoons from cattle metapodia. Manufacture debris is not abundant and the question is whether this is related to taphonomy, excavation and recovery techniques, or specific activities carried out at some of the sites. Overall importance of analyses of the osseous industries and comparative approach of different technologies will be discussed.

TH1-30 Abstract 09

Post-depositional alterations on the bone surfaces – experiments with different agents of abrasion

Author - Mgr Orłowska, Justyna, Nicolaus Copernicus University, Toruń, Poland (Presenting author)

Keywords: bone and antler, experimental archaeology, taphonomy

Presentation Preference - Poster

Taphonomic issues are one of the most important factors that must be concerned during study of every archaeological bones or osseous artefacts. Especially, if our analysis is subordinated to technological or use-wear traces. Identification of human or nonhuman modifications is then crucial. Weathering, trampling, tooth marks, root etching or sedimentary abrasion are just the examples of possible nonhuman destroying agents. The main goal of presented study was to understand and describe changes resulting from the different kinds of sedimentary abrasion (among others bioturbation and movement in an aqueous setting) on the bone surface. The experiments related to the study have been divided into two main parts. One was connected with modifications observed on raw bone surfaces. The second one, with degradations raised on processed bone surfaces (among others scraped, polished) and their possible influence on the morphology of observed traces.

TH1-30 Abstract 10

A replication of Neolithic bone harpoon with engraved concentric circles from Šventoji, W Lithuania

Author - Gaibuskas, Lukas, Vilnius University, Vilnius, Lithuania (Presenting author)

Keywords: bone working, experimental archaeology, Stone Age

Presentation Preference - Poster

This poster presents an experimental study which was designed to replicate the manufacture of a bone harpoon with a certain type of engravings using only the tools and materials available for the Subneolithic societies at the environmental setting of the eastern Baltic. The harpoon with a pattern of concentric circles engraved on it was found at the site Šventoji 6, which is a refuse waste area in the bed of an ancient lagoon lake and is dated to the end of 4th millennium BC. While concentric circles were widely used to decorate bone and antler tools and ornaments in different chronological and geographical contexts, there are no analogues for the find from Šventoji 6 from the same period even in the neighbouring regions. The problem is that this type of engraving is mostly associated with metal tools, which could have appeared in the region only in the Bronze Age, after 2000 BC. The foreign origin of the harpoon with concentric circles is confirmed by another find from the same site - a worked piece of bone, on which the manufacturer tried to imitate the same decoration of concentric circles, but instead produced polygons with a dot in the center, which look nothing like the engravings on the harpoon. However, a clue for the engraving of concentric circles before the appearance of metals comes from a certain type of Puebloan stone tools in North America. In my experiment I try to replicate the harpoon using similar stone tools and then compare it to the production of the same artefact using metal tools.
**TH1-31 Abstract 02**

**About two areas of adornments with champelev enameled hoards**

**Author**: Doctor in hab. Obitomski, Andrei, Institute of archaeology of Russian Academy of Sciences, Moscow, Russian Federation (Presenting author)

**Presentation Preference**: Oral

Adornments with champelev 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, Moschchina, Borina, Glazhevo, Bryansk Region, Shishino and others). The artifacts in these complexes have certain stylistic unity. In the majority of the hoards female artifacts of different preservation level are presented. There are artifacts of men's fabrication of prestige (Bryansk, Novolukoml', Moschchina). 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 enamelled style development. Artifacts of degradation stage were found in two complexes (Moschina 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 artifacts with enamelled adornments belonged to Late Scythian and Kievan population. All hoards were found in the area of Kievan culture or near its border (Moschina). Thus, the Dnieper hoards area is directly related to Kievan culture. In Eastern area 4 hoards were found (Zhuravka, Pankovets, Zamyatin-Yuryev, the Labelynd district). Three of four complexes are hoards of stamp 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, “Okh” fibulae, single late Sarmatian and Central European artifacts are known. So Don complexes belong to the same period, as Dnieper/Oka hoards. Western area hoards are complexes of female dress accessories sets and items of men culture of prestige. The Don hoards are complexes of handicraftsmen raw materials. The two territorial groups are essentially different. The mass spread of adornments with enamels in the Don area may be explained by attacks of this region population on the Dnieper/Oka territory. The Don population was not interested in adornments, but in scrap metal. Perhaps, these attacks were also the main reason for hoards hiding in Western area. The Upper Don region was attacked by the third force soon after these campaigns, therefore, the Don hoards were hidden. This force could be the groups of Chernyakhov culture population. As a result of their advance to the Upper Don region in the middle of the 3rd century, Kashkina – Sedykh cultural group was formed.

The report is prepared on the RGIF project No. 14-01-00269.

**TH1-31 Abstract 03**

**“Diadems” from the East European world of enamelled ornaments**

**Author**: Dr. Rodinkova, Vlasta, Institute of Archaeology Russian Academy of Sciences, Moscow, Russian Federation (Presenting author)

**Presentation Preference**: Oral

Among artifacts, composing a jewellry 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 burial site allow to consider them as ornaments of the head, perhaps not headbands but “diadems” used in combination with high hairstyle or over a headband. Today not less than 25 wholesale and fragmented exemplars are known. Excluding one find, they have no enamel inscription, but are decorated with embossed and engraved geometric patterns. According to peculiarities of shape and ornament the array of “diadems” was divided into three main and two additional types. Their mapping shows that the main types are local. All copies of the type 1 come from the Baltic region, mainly from the territory of modern Lithuania. Most of the type 2 finds are connected with Dnieper and Upper Oka area. The exceptions are the Upper Dvina. Recently artifacts from the circle of East European enamelled ornaments, including fragmented “diadem”, have also been found in the Upper Don region (items of types 2 and 3). As a result, the majority of the hoards female artifacts of different preservation level are presented. The majority of the hoards female artifacts of different preservation level are presented. There are artifacts of men's fabrication of prestige (Bryansk, Novolukoml', Moschchina). 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 enamelled style development. Artifacts of degradation stage were found in two complexes (Moschina 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 artifacts with enamelled adornments belonged to Late Scythian and Kievan population. All hoards were found in the area of Kievan culture or near its border (Moschina). Thus, the Dnieper hoards area is directly related to Kievan culture. In Eastern area 4 hoards were found (Zhuravka, Pankovets, Zamyatin-Yuryev, the Labelynd district). Three of four complexes are hoards of stamp 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, “Okh” fibulae, single late Sarmatian and Central European artifacts are known. So Don complexes belong to the same period, as Dnieper/Oka hoards. Western area hoards are complexes of female dress accessories sets and items of men culture of prestige. The Don hoards are complexes of handicraftsmen raw materials. The two territorial groups are essentially different. The mass spread of adornments with enamels in the Don area may be explained by attacks of this region population on the Dnieper/Oka territory. The Don population was not interested in adornments, but in scrap metal. Perhaps, these attacks were also the main reason for hoards hiding in Western area. The Upper Don region was attacked by the third force soon after these campaigns, therefore, the Don hoards were hidden. This force could be the groups of Chernyakhov culture population. As a result of their advance to the Upper Don region in the middle of the 3rd century, Kashkina – Sedykh cultural group was formed.

The report is prepared on the RGIF project No. 14-01-00269.
Dniester region. Particularly the find from Zhukin is dated to the middle/second half of the II - the middle of the III c. AD while the "diadem" from Sukhonosivka is probably related to the Hun time not excluding the beginning of the V c. AD.

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TH1-31 Abstract 04
East European champlèvé enamels: production technology and possible origin
Author - Rumiantseva, Olga, Institute of archaeology, Russian Academy of Sciences, Moscow, Russian Federation (Presenting author)
Keywords: Eastern Europa, enamelled ornaments, Roman time
Presentation Preference - Oral

East European enamelled objects appear in the Baltic, Upper and Middle Dniester 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. Bilner-Wroblewska and T. Stawiarz. The technological investigation of enamelled objects of the Briazisk hoard aims to develop this line of inquiry.

The hoard discovered in the Briazisk 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 champlèvé technique.

Techniques used for enamelling monochrome needles include the applying of wet glass powder or previously turned pieces of glass. Large fields were filled by powdered enamel in two stages: firstly the ground layer was heated, afterwards the upper layer was applied.

Polychrome needles with combination of enamels of different colours without metal bars could be enamelled using juxtaposed blocks of glass, or, more likely, by a combination of blocks and powdered enamels of different colours. It cannot be also excluded that in some cases enamels were applied and heated successively colour by colour. Line- and wave-shaped elements were applied as wet enamel powder (possibly using stencils) and as pre-formed drawn rods. The choice of the technique seems to depend on the glass colour; special features of colour formation and difference of melting temperatures for enamels of diverse colours.

The following technological features of the studied objects should be highlighted: applying of glass working techniques (such as the use of drawn rods); complicated combination of different methods of enamelling; implying skills of a high degree; the use of cut blocks of glass demanding semi-finished products of a size exceeding one typical for beads. It enables to assume that the objects in question were not produced by local “Barbarian” craftsmen. It is likely that they were made by professional glass workers, possibly, of provincial Roman origin. According the style wherein the ornaments were made it appears that the East European enamelled objects made part of artics, custom-made for Barbarian people by late antique craftsmen. Possible production centers for them have not been discovered so far. They were likely located in zones of the most active contacts between Barbarian and late antique population. It is very tempting to assume their location at the Barbarian settlements characterizing by the presence of late antique representatives, numerous imports and developed handicraft industry, interpreted as regional industrial, commercial and administrative centers, and also trading ports beyond the limes.

The funding for this project was provided by Russian Foundation of Humanities, № 14-01-00269a.

TH1-31 Abstract 05
Cultural and economic exchange in the Dniester-Donets forest-steppe during Late Roman Time
Author - Dr. Schultz, Erdmute, DAI, Eurasia Department, Berlin, Germany (Presenting author)
Co-authors - Lubczew, Mikhail, Karazin University Kharkiv, Kharkiv, Ukraine
Keywords: Chernyakov culture, cultural exchange, settlement activities
Presentation Preference - Oral

During the first centuries AD comprehensive settlement activities took place in the expanses of the watershed between the Dniester and the Southern Donets rivers, processes in which the Chernyakov and Kievan cultures as well as nomadic Sarmatian tribes were involved. The interactions between these groups are considered on the base of recent investigations in this area. Special attention will be payed to material of the Chernyakov culture concerning indicators for influences of other groups on the burial rites, the geographical position and structure of the settlements. Furthermore imported objects from the sites like amphorae, glass beakers and others will be discussed as evidences for the exchange between the “barbarians” and the ancient cities of the Black Sea coast.
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 “Antes” 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? Why did the people of the “treasures of artisans”, containing a series of things, jewelry, belts, buckles as well as specific potttery forms apply to the investigation as well. Most of the discussed burial complexes were discovered during excavations performed in the historical East Prussian districts of Sambia and Natonja on the flat burial sites Bot’shoe Isakovo (former Laucht), Schossinjoe-1 and Schossinjoe-2 and are published for the first time.

TH1-31 Abstract 9
Sites of the late stage and the end of the Imenkovo culture in the Middle Volga region
Author - Dr. Pavlovič, Daša, National Museum of Slovenia, Ljubljana, Slovenia (Presenting author)
Keywords: early medieval archaeology, Imenkovo culture, Middle Volga region
Presentation Preference - Oral

The issue of defining the time and circumstances when the one of the largest early medieval archaeological cultures of the Eastern Europe ceased to exist is the most debatable one for the archaeology of the Middle Volga region. For years of Imenkovo culture studies, several completely opposite hypotheses on this issue were developed. The majority of the hypotheses are of historiographical interest, but the issue still remains debatable. According to various researchers, the cessation of existence of Imenkovo culture is related either to the leaving of population from the region at the end of the 6th - the beginning of the 7th c. (Alexey Bogachev) or at the end of the 7th c. (erygen Kazakova) or to the slow dissolution in the culture in the early Volga Bulgarian culture in the 8th-9th centuries (Galina Matveeva, Yuri Sermyhin).

As a result of the recent research, it became possible to determine at least two stages of the Imenkovo culture: the early one in the 4th-5th c. and the late one dated 6-8 c. The chronological framework of the last stage was determined according to details of heraldic-style belt sets, Sasanid coins, several furniture and costume details.

The bibliography of the collections allowed to determine the late Imenkovo materials from Komiters 2 burial ground and Makishevskaya archaeological complex in trans-Volga area. "Osh-Pando" hillfort in the Middle Sura region. These sites are very similar in culture and dated 6th - the first half of the 7th c. The common feature of this group is the mix of classic Imenkovo cultural complex with "eastern" artefacts.

The synchronous group of sites that is culturally distinct was researched in the Ulyanovsk region. Cremation burials of Komarovka burial ground contained relatively rich" materials of the 6th-the first half of the 7th c. The ceramics and artefacts found in the hillforts of the "Ashna-Panda" and "Shom" in the Middle Sura region are related to the "final stage of the Imenkovo culture. The both of the sites are the second half of the 7th c. (the beginning of the 8th c. is also possible). These sites have a significant difference in ceramics and artefacts, therefore, the Imenkovo population was inhomogeneous at the same time.

The materials of the late Imenkovo sites have a clear local specifics conditioned by different directions of cultural relations. It is possible to define stable local variations of culture only on the late stage of the Imenkovo culture. The specific regional types of furniture and costume details and differences in ceramic complex appeared in the 6-7 c. The cessation of existence of Imenkovo sites in the different regions was taken place in different periods, possibly, due to different reasons. In the majority of regions with Imenkovo culture remains, the upper boundary does not exceed the first half of the 7th century. However, in some of the eastern part of Imenkovo culture area remain later, probably even until the beginning of the 8th c.

TH1-31 Abstract 10
A new view on the chronology of fibulae of Dollkiev/Kovrovo type in the light of new research data
Author - Dr. Prassolov, Jacekolew Aleksie, ZBSA, Schleswig, Germany (Presenting author)
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Keywords: fibulae of Dollkiev/Kovrovo type, Kalingrind region, former East Prussia, Sambian-Natangian culture, chronological frame
Presentation Preference - Oral

Further development of the existing fine chronology of one of the most characteristic find categories - fibulae, remains an important task in the archaeological research of the Iron Age Sambian-Natangian culture (also known as the Dollkiev-Kovrovo culture) in the south-eastern part of the Baltic Sea basin. Actual investigation focuses primarily on the verification of the chronological frame of fibulae of Dollkiev/Kovrovo type. For this purpose presumed mutual occurrence of several fibulae types as well as other characteristic artefacts (i.e. chronological markers) in the burial complexes are discussed in detail in the artefacts data. The transition from the Late Roman period to the Early Migration period and the diachronic typological tendencies within the framework of the later period are demonstrated by means of the comparative analysis results of the so-called big crossbow fibulae, characteristic for the Late Roman period/the very beginning of the Migration period, the so-fibulae with the star-shaped foot, fibulae of type Schomwarling/Skowarcz and Dollkiev/Kovrovo, which are found in the cremation graves in the area of Sambian-Natangian Culture starting from the Early Migration period. Comparative analysis results of further chronological markers of the periods in question (brooches, shoulder straps, jewelry, belt ends, buckles as well as specific potttery forms) apply to the investigation as well. Most of the discussed burial complexes were discovered during excavations performed in the historical East Prussian districts of Sambia and Natonja on the flat burial sites Bot’shoe Isakovo (former Laucht), Schossinjoe-1 and Schossinjoe-2 and are published for the first time.

TH1-31 Abstract 11
Salt production in the Landscape of the Polish Lowlands in the Roman period
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Keywords: Poland, Roman period, Salt production
Presentation Preference - Oral

The aim of our paper is to present the recent developments and achievements of our project about the study of ancient exploitation and production of salt in Poland, which implies both the study of salt production processes and its role in the organization and articulation of the territory during the Roman period. The geo-historical framework for this study is the north western part of Poland (Kuyavia and Great Poland), during the period of the Roman influences (II-III AD). The essential underlying idea of our investigations is the role of salt as a structuring territorial resource and its importance to understand the complexity of social transformations of indigenous communities in the period of the contacts with Rome. Thus, this study involves both the examination of the archaeological evidence for salt resources and its historical interpretation within a regional context and the global perspective of the contacts between the barbaricum and Rome.

TH1-31 Abstract 12
Lombards necropolis on the Danube: material culture and social identity
Author - Codromaz, Federica, Università degli Studi di Trieste, Gorizia, Italy (Presenting author)
Keywords: Migrations, necropolis, society
Presentation Preference - Oral

During their migration from Scandavia to Italy, the Lombards settled for about 40 years in Central Europe, in the Danube river area and Pannonia, between Vienna and Budapest, where a lot of burial areas have been found. Here, with Franks people west, Gepids and Slavs at east, and a lot of autochthonous people of roman tradition, the Lombards feel threatened in their political and cultural independence. Their society was still heterogeneous and various and, to keep their social and political unit, they developed a strongest material culture, that is the expression of different social meanings. This development has a great reflection in the funerary practices. Here, will be analysed few Austrian and Hungarian cemeteries; the study and the analysis of burial customs and material culture of these sites are essential to understand how they developed their identity, through the diffusion of different customs and the integration of people of different origins. These sites, as well as illustrating the more important methodological problems of this type of approach, present the starting point and the further developments of Lombards’ culture, and allow to draw some important conclusions about the change of the society, and thus the construction of the ethnic identity of this people, that evolved in the middle of Europe during the migration age and that they took to Italy in 588.
TH1-31 Abstract 14

Cultural exchanges between Barbaricum and Roman Empire in Lower Danube Region

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

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Keywords: border and periphery, cultural interaction, historical ethnic groups

Presentation Preference - Oral

It is a long discussion about the influences between the Romans and barbarians, last one understand as the other. The Lower Danube area brings its contribution to this debate, even till now the main discussion was based only on the discoveries from Middle Danube, there being a variety of evidence, from the famous Danubian sites, to the mass graves of the early Slavs, to the more recent discoveries from the Middle Danube region. The main point of discussion is the interaction between Danubian communities and Roman settlements. The question is how can we understand the role of these communities in the context of Romanization?

The presentation will discuss the potential for understanding these interactions through the study of the pottery from the different sites in the region. It will focus on the differences in the pottery styles and techniques used by the different communities and how these can be linked to the Roman influence. The presentation will also discuss the evidence for the presence of Roman traders and soldiers in the region, and how this may have influenced the local communities.

TH1-31 Abstract 15

Barbarian Coins, Elite Identities and the Birth of Europe

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Keywords: Coins, Gothic, Imitations

Presentation Preference - Oral

A commonality of the cultures of “Barbarian” northern and Eastern Europe was the production of coins imitating the issues of the Roman Empire. Analysis of die-linked coins (i.e. struck from the same die and thus produced in the same workshop) has long been a method used to infer cultural contact between centers of power? How can we track cultural interactions? What can be considered as an import? What are the ways that evidence: 1) the study of the pottery; 2) dates obtained from the analysis of the radioactive isotope of carbon 14C; and 3) comparison with the spread of the allegedly contemporaneous Lombard settlement north of the Danube and in the Pannonian Plain.

The main argument that supports the possibility of early Slavic settlement in the first half of the 6th century is the Lombard colonization of Pannonia and its archaeologically proven gradual pace to the line Szentendre–Kezthely–Pécz and later colonization of central Slovenia. Unexpectedly, the area between Pannonian settlement and Central Slovenia, i.e. north-eastern Slovenia, was left unsettled by Lombards. Since the lowland settlement of indigenous Romanized inhabitants in the 6th century was still not discovered, it is strongly believed that Lombards encountered the early Slavic settlement west of the above mentioned line. A further argument for the hypothesis is the archaeologically proven fact that both early Slavs and Lombards respected the borders between areas of their settlement north of the Danube, which is also supported by 14C dates.

TH1-31 Abstract 16

A Barbarian, meaning who?

Author - Dr. Nalinch, Krzysztof, University of Warsaw, Chojnice, Poland (Presenting author)

Keywords: Identification, Relationship and influence, Romans and Barbarians

Presentation Preference - Oral

In late antiquity, due to a change in social relations inside the barbarian societies, perception of Barbarians themselves changed as well. As a result of the intensification of contacts which less and less frequently took a form of a one-sided diktat, the late-antique community was poly-ethnic with a large number of different cultural elements, the economic and social development of which led to the formation of a new social class which could be considered a characteristic feature of the late-antiquity warfare. The war itself, on the other hand, was the factor which formed particular barbarian populations, which made them create permanent state organisms.

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

TH1-31 Abstract 17

Burials with weaponry of the upper Dnieper version of the Zarubintsi culture

Author - Voronchakaya, Laisa, The State Hermitage Museum, St. Petersburg, Russian Federation (Presenting author)

Keywords: upper Dnieper, weaponry, Zarubintsi culture

One of the specifics of the upper Dnieper version of the Zarubintsi culture making it different from the Polesye and middle Dnieper versions is a custom of placing weaponry in a grave. On the burial ground Chaplin 14 spear and dart heads (5%) were found in 282 burials, on Yurkovichi in 1 out of 19 (5.3%). On the burial ground Goroshkov spearheads have been found in six investigated burials out of 32. All the heads of are iron, socketed, with a leaf-like feather, and bear traces of having been fire in. 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 modeled bowls, contained horsehoes-like iron (filius of sygogama type and (or) iron knives with hunched basis. What is more, the knives always lay with the point directed to the side opposite to that of the spearhead.

A unique element for the funeral rites of the Zarubintsi culture is an iron spearhead stuck almost vertically into the bottom of the burial pit with the socket facing upward (burial No.13 of the Goroshkov burial ground). The custom of driving weaponry or labor implements through the remains of the burial person placed in an urn or a pit is widely distributed territorially and chronologically. It is noted in the 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 burial of the Danube zone. The vertical piercing (driving) of a spearhead into a burial pit had apparently some ritual or magical significance.

This custom is interpreted variously. On the one hand, there is a rich mythology existing about spears that pierce the vault of heaven and therewith give humans access to the sky. On the other hand, the weapons were driven into the remains of the buried man that were wide-ranging exchange networks across much of the northern “Barbaricum” during the Roman and Migration periods. Furthermore, both official Roman coins and medallions, as well as their imitations, played an important role in the localization 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: images maestri” by the University of Warsaw and the Römisch-Germanische Kommission that aims to understand how these imitations of Roman coins were produced and used by the developing elites right across the northern and eastern “Barbaricum” to demonstrate their status.

The picture that is emerging is one of disparate groupings linked together by common elements of material culture and of a wide-ranging exchange network, but above all of the crystallization of the Gothic power centre on the territory of the Chemnitz/Sintiana delMure Culture.

The coins not only portray a diverse and deep-ranging picture of how such elites saw and expressed there identity, both with reference to Rome and to each other. They also provide new and revealing insights into the interaction and communication between the northern and eastern barbarians, in particular the Goths on the one hand, and the imperial administration and the population of the provinces of the Roman Empire in Late Antiquity on the other.
In order to link the deceased to the ground and prevent him from leaving the grave. Finally, this custom is viewed upon as a reflection of phallic cult symbolizing the re-fertilization of Mother Earth.

Also for the first time for the Zarubintsy culture an iron scabbard of a sica, a battle knife (burial No.28.) and the spiked head of a Scythian arrow (burial No.30) were found in Goroshkiv.

On the basis of the finds of various versions of fibulae of the middle and late La Tene scheme, the burials with weaponry of the upper Dnieper version of the Zarubintsy culture are dated to the 2nd-1st cen. BCE periods.

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

TH1-31 Abstract 18

Geoinformation methods in dealing with East European barbarian champlèvé enamels

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Keywords: Champlèvé enamels, Geoinformation methods

Presentation Preference - Poster

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

The source corpus by G.F. Korzukhina (1978) reflected the situation of the early 1970s. About 450 objects divided into 10 categories (Brooches, Bracelets, lunula-pendants, Chains, Plate items, Neck-rings, Charms, Linings, Rings, 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 different: 192 items were found in the excavations, 74 were related to the "casual" finds. Totally 68 places with the finds in the Dnieper region were recorded. The author of the source corpus identified three regions where things with enamels spread: Middle Dnieper, Baltic and Volga-Oka regions.

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

Thus, even on the example of existing source corpus it is obvious that a significant part of the findings is not related to the archaeological excavations. At present all 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 on since the middle 1990s—early 2000s. Nevertheless over the past 10 years hundreds of things in museum collections have replenished range of enamels. Regular work on fixing findings is carried on in a number of regional museums.

At present day we have information on more than 2,000 items. Such study full database (source corpuses by Korzukhina et al.) continues. New approaches in work with undocumented finds allow including them in statistical survey. The first results of such work allow eliminating the G.F. Korzukhina’s hypothesis about three areas of distribution of objects with enamels. The newest mapping fills existing gaps in the Upper Dnieper region, on the left bank of the Dnieper, in the Neman region. The amount of finds in the Middle Don region has increased significantly. Many things from the right bank of the Dnieper and Western Ukraine became known. New categories of things unknown among a set of categories in Korzukhina’s book were allocated. Number of items in previously small categories of things significantly increased. Information from full database allows beginning the work on allocation regional and interregional series of things, based on statistically valid samples of items.

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TH1-31 Abstract 19

Neck-rings of the ‘emamelled 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 ringlet–shaped ends, are a conservative stuff category. In the South Eastern Baltic Area, these are known from stray finds (Taurage) and from burial complexes (Malžony, Verbla). In the Dnieper–Oka region, such neck–rings originate from hoards (Mošňohy, Mžigora, Velam), and Ulów. Amongst the neck–rings of the Malžony burial ground, there is a specimen cut in two—which could serve as a piece of evidence of ‘killing’ the stuff. In three hoards from the Dnieper–Oka region, cut-neck-rings are known, too. The latter could indicate the sacrificial or votive character of the hoards of enamelled ornaments.

TH1-31 Abstract 20

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

Author - Dr. Niesiebłowicz-Wiśniewska, Barbara, Institute of Archaeology

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

Presentation Preference - Poster

In the vicinity of Ulów (Middle Rzucôte, SE Poland) the complex of multicultural archaeological sites was found. Among them two bi–ritual cemeteries (site 3 and 7) originating from the late Roman Period and the early Migration Period were discovered. On the map of archaeological cultures, Ulów is located in the settlement zone F of the Wielbark Culture. Therefore, the features typical of this culture dominate over the cemeteries discovered in Ulów. However, no fewer is the number of features of funeral rite, location of the site, as well as grave goods possessing parallels in other cultural units from the European Barbaricum (e.g. Mârzametz Group, Chernyakhov Culture). It is known that the Wielbark Culture has a small number of wheel-made pottery. Moreover, it has not yet been proved that the population of this culture produced such a ware (apart from one “episodic” from Welków). According to many archaeologists, wheel-made potteries from the Wielbark Culture sites are in most cases imported from the Chernyakhov or Sântana de Mure cultures. In the light of this fact, surprising is the extraordinary number of wheel-made pottery and its fragment discovered in Ulów. In site no. 7, they comprise more than a half of ceramic ware from the Roman and Migration Periods. In this case, it can not be ruled out local production of at least part of the wheel-made pottery beginning at the phase Cb2-C2 and connecting the ornamentation of handmade Wielbark Culture pottery with the technology and morphology of wheel-made pottery characteristic for the Chernyakhov or Sântana de Mure Cultures.

TH1-31 Abstract 21

The heyday and decline of settlement of the Przeworsk Culture in the Lublin Region, eastern Poland

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Keywords: interdisciplinary studies, Przeworsk Culture, settlement reconstruction

Presentation Preference - Poster

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

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

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

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

It seems to be possible that its history is part and parcel of the changes which occurred at the territory of the Barbaricum and Roman provinces in connection with the Hun invasion in 375 AD. We witness then a return of some settlers of northern provenance to former settlements, that is a movement of groups of people through the Carpathian passes from the southern and south-eastern direction. The interdisciplinary studies carried out in Nieszawa Kolonia systemically fill the still up-to-date postulates of the internationalisation of studies over settlements of the Przeworsk Culture.
The preparatory stage of pottery technology among the Russian forest-steppe cultures in IV-VII AD

Author: Nikitina, Anna, Samara State Technical University, Samara, Russian Federation (Presenting author)

Keywords: ancient pottery, East European Plain, Migration period

Presentation Preference: Poster

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

Consideration area includes series of archaeological cultures: Prague-Korchak, Penkovko, Chernyakhov (in part), later Kiev and Kolochen, Mozh Cherno, culture of Volga Rims, Imenkov. Studying of Eastern Europe forest-steppe sedentary cultures ceramics as a single phenomenon has not been conducted, but there are some works in separately. The main part of the special researches about ceramics are works devoted to the vessels shapes typology, based on the method of ceramics processing, which had introduced into scientific circulation by IP Rusanova and VF Gening in 1973. These typologies had arisen from the mid-1980s and still are working. These include typology of AM Oblonsky, OS Rumyantseva, AM Vorontsov, VV Grishknev. 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 Massaliina. 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 Bobrinisky. He studied in detail the pottery of the Chernyakhov culture, in particular the selecting and procuring the raw materials, blending the pottery pastes, features of build, the study of pottery circles, the organization of the pottery industry. In addition, technical and technological analysis conducted by NP Salugina of the Imenkov culture pottery covered all stages of pottery production and gave a full presentation about the traditions of this population. In recent years, some ceramic sets of Chernyakhov culture began to be exposed to petrographic and X-Ray studies.

We believe the analysis of pottery technologies is the topical question of study of sedentary cultures of the Eastern Europe forest-steppe, and this stage of our research work is devoted to the characteristics of the raw materials and pottery pastes. Our observations were made on fresh fracture sherds using stereoscopic microscope MS-1. Definition components of raw and paste composition was carried out by collation with a models collection, developed on the basis of Samara expedition to the forest-steppe. Our observations were made on fresh fracture sherds using stereoscopic microscope MS-1. Definition components of raw and paste composition was carried out by collation with a models collection, developed on the basis of Samara expedition to the forest-steppe.

The research was identified the several traditions to varying degrees dominant in different territories. However, the general of most traditions are the selection skills potters of “low-fat” clays and adding a grogmade of splintered vessels in the composition. We suppose that the detected affinity of pottery traditions is reflecting the close connection within the studied population.

Glass beads of Imenkov culture
(on the materials from the Tetushskoe II settlement, Middle Volga)

Author: PhD Stolyarova, Elaterina, Institute of Archaeology RAS, Moscow, Russian Federation (Presenting author)

Keywords: glass, beads, Imenkov culture, Middle Volga region, imports, the Middle East

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. 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. 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. 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. 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.

'Burakovo horseman': 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 A.D. The site was heavily damaged by abrasion and excavations (1984-2003) were irregular and limited. Reports on Komintern 2 excavations were partly published (Kazakov, 1998; 2005), the historiographical tradition, mainly controversial has managed to developed in such difficult circumstances. Situation becomes more complicated due to existence of another complex, ‘Komintern hoard’ (also known as ‘Komintern burial mound’, ‘Burakovo burial ground’ or ‘Burakovo horseman’) that was similarly named and have close location to Komintern 2 burial ground. The ‘hoard’ has controversial historiography developed around it too. This work aims to find origins and define status of the ‘hoard’ and its relations to the burial ground.

According to the first publication (Izmaylov, 1990) the ‘hoard’ originated from the burial ground (nearby Burakovo) that was destroyed by water reservoir. Later publication (Muhametshina, 1999) as well as documents of Bolgar Museum-Reserve argues that the artefacts were found by the resident of Burakovo, P. Levagin, in 1983 in Beganchik island (located in the place of eroded burial ground), 1 km far from Komintern. The first localization was inaccurate, as there is 5 kilometer 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 Azoline 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 torquise inserts, (2) silver stamping belt-set with lead filigree, charactaristic for 3rd horizon of Volga region heraldic style, (3) two cast silver strap ends of Artsybaevvo type. Other finds can not be attributed to any of these groups. The presence of these artefacts in the one closed complex is considered to be extremely unlikely.

Apparently, ‘Komintern hoard’ is not the single complex and is an accidental selection of random finds collected from destroyed sites of the left bank of Akhtay stretched from ‘Deshey Gorodok’ to Beganchik Island. The island is considered to be the most likely place of finding of the main part of the hoard and is related to the several destroyed burials of Komintern 2 burial ground.
TH1-32 Abstract 01

Basque Iron metallurgy, habitat and social complexity during the Middle Ages (7th-14th A.D.)

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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 most important areas in mountainous areas. Indeed, with ironworks located generally on the basins of mountainous areas, equipped with one or more slag-tapping furnaces. These are the so-called haizeak, which in the Basque language are wind ironworks, as opposed to the zeharrolak or hydraulic ironworks. Just like every other discovery, it seems more likely that this impression is just a result of the nature of archaeological investigation itself, traditionally, had been prioritizing very precise prospections and intervention in the mountainous zones of the Basque Country. Nothing, however, was known about the inland flatlands except, paradoxically, that there was a major metallurgical activity judging from textual information. The so-called “Rea de San Millán”, dated 1025 A.D., gives the list of the almost 300 villages of Iria from which the monastery of San Millán de la Cogolla demanded the payment of iron taxes, an obligation that was maintained one century later in the so-called “Falso votos de San Millán”, but which did not extend to the rest of the Basque territories.

This apparent contradiction between archaeological sources and written text has been begun to be resolved with the systematic application of new open-area excavation strategies with veritably surprising results. As opposed to the hitherto archaeology, the evidence of iron production located exclusively in mountainous areas at a date such as the 10th century. The archaeological record shows us a more diversified reality with large metallurgical establishments located in the flat areas of Iria, at the very heart of early medieval villages. The latter is, in fact, the principal novelty: the location of iron factories in the country villages. The development of this metallurgical activity can be divided into two extensive periods. The first, running between 600-950 A.C., is characterised by the existence of several settlements of a rural nature in which the same iron industry is developed, capable of exploiting the entire operational chain, that is, from the reduction of the ore to the final forging of the ferrometal (iron). The second period, which runs from 950 to 1400 A.C., presents considerable differences between the sites. Thus, while some basically maintain the pattern of spatial and production organisation of the first phases, others develop rapidly towards fully urban forms. These transformations would bring with them a significant change in the iron production strategy, leaving behind the rural industries and only maintaining the forging activities.

Moreover, the archaeometallurgical and metallographic studies undertaken have enabled archaeologists to identify the type of iron mineral used, the different models of exploiting woodland, diverse technological changes in production (obtaining iron or steel according to needs) and other aspects relating to the operation of slag-tapping furnaces and forges.

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TH1-32 Abstract 03

Iron and Society in the Baltic 900 - 1350 AD

Author - Assoc. Prof. Magnusson, Gert, Stockholm University, Stockholm, Sweden (Presenting author)

Keywords: Iron production, trade, urbanization

Presentation Preference - Oral

It is widely accepted that the fall of the Roman Empire had a negative impact on the iron industry across Europe affecting its production, distribution and consumption (e.g. Tylecote 1980). The metal production centers became closely linked to political, military or religious powers (Hinton 2005) mainly focused on providing to elites since ‘iron objects were expensive items’ (Jaritz 1995) not affordable for most of the populations. Archaeological evidences contribute to this supposed scarcity of metals within the peasantry since agricultural implements of early medieval chronologies are infrequent: typically rather exiguous numbers of barely 1-2 items per site (e.g. Hamerow 2011).

In stark contrast with these arguments, recent archaeological excavations on rural settlements from Early to Late Medieval times (Quirós Castillo 2011) carried on the Basque Country area (north of Spain) point out that even during the earlier period the inhabitants of the villages enjoyed relatively large amounts of iron implements –counts by hundreds – typically households or farming base tools. The metallographic analyses of thirteen iron implements reveals that these are very acceptable quality items made with carburised low carbon steel by piling, employing occasionally sophisticated techniques such as carburisation and even the complex pattern-welding technique as far as only seen in the decoration of high status weaponry (Peirce 2002).

This paper aims to investigate the engineering parameters behind the iron production and manufacture of iron utensils during Early Middle Ages as well as the accessibility of those by the peasantry: the concept of ‘expensive’ applied to technology is reviewed to point that medieval iron might be high-priced but still an affordable commodity same as the electronic technology nowadays. The conclusion is that ‘expensive’ is a very relative term depending not only on production and consumption parameters but also that geographical location, role within the society or political context had a considerable influence to access the reviewed to point that medieval iron industry, and offers a tentative reconstruction of interplay between iron models of production and peasant communities during EMA in the Basque Country area.

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This paper is an attempt to describe the development in the Baltic during the period 900 to 1350 AD in a holistic perspective pointing out iron production as a force for changes in different societies around the sea.

During the Viking Age the societies around the Baltic underwent a remarkable development within agriculture, several towns were founded along the shores and in the river valleys and there was a change from pagan religions to different versions of Christianity. Supposedly there was an increase in a large scale trade with intensified contacts between the caliphate, Byzantium and the Carolingian empire, where the Baltic became a transit area. Iron might have been an important factor in the economy of the area, as the production increased significantly and was undertaken all around the Baltic. In the end of the period the island of Gotland became a center of smithing. Substantial iron production was initiated in the island of Saaremaa in Estonia and in the land of the tribes on the Swedish east coast in the county of Småland. Here there was what has to be described as a mining area of lake and bog ore with over 1000 known bloomyer 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, especially 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 bloomyer 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, Gotlän, Krusaaare and other towns around the Baltic. The role of the cities also grew in importance and urbanization became a vital part of these economic and social changes. Iron was traded from Kalmar during the 13th century under the name of Calmare iron. The iron production in Visby was recognized by the Pope in 1229 as a serious political problem. As the people of Gotland traded arms to the Baltic tribes thereby threatening the Christianization of the region. The letters from the Pope show that trade and production in the Baltic area were a European issue and a part of a European modernization.

Changes in consumption, production and economic thinking require innovative environments and networks. Which settings, systems and actors enable innovation that can change the conditions for a whole society? In Sweden, the rapid emergence of Bergslagen was vital. The blast furnace was developed, perhaps as early as the 1000 AD, and around it extensive technical systems took shape, which then grew exponentially during the 11-1300’s. Metals were recovered from rock ore in a new way and on an unprecedented scale. In Bergslagen, Sweden’s economic base was built in a sparsely populated outland. This setting was characterized by diversity and flexibility which characterizes resilience. This paper will discuss Bergslagen as a system network focusing on innovation, expansion and resilience.

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Interpreting the Archaeological Record

The migration period is characterized by movements of people coming from the fringes of the Roman Empire and settled on the Roman territories. Such period is poor of contemporary historical records, but rich of archaeological material. This has opened a long-lasting debate to have a view of the patterns of migrations, the impact of new peoples on the autochthonous populations, and the demographic processes occurred. The study of the early medieval period encourages a more direct comparison between different discourses both in terms of methodology and result data. In recent years, archaeology has considerably improved its interdisciplinary approach, integrating scientific evidence to construct a nuanced view of human patterns of migration and demographic models.

The session offers a forum for the discussion of archaeological and scientific approaches to the study of past migrations and the dynamics of human interactions. First, we invite papers dealing with the theme of migration in any time period, not necessarily medieval, which work comparatively across regions. Aim is to discuss current methodologies and results in the study of human past migrations.

Second, we invite researches that use recent scientific data, such as isotopes and DNA analysis, to investigate patterns of human migrations, interaction between migrants and autochthons, and reconstruction of demographic scenarios.

Lastly, we want to open the floor to discussion of future disciplinary aims in terms of data collection, management and presentation. We invite presentations on the management of electronic and interregional data collected in datasets and maps, which possibly relates results from different disciplines and researchers.

TH1-33 Abstract 01
The Avellino Event: investigating the migration resulting from the Bronze Age eruption of Vesuvius

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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. The population of the Campanian plain did not fully recover for several centuries after this so-called ‘Avellino Event’. Oddly, no one has yet wondered what might have happened to the fleeing population of Campania. The authors present preliminary results of a new 5-year research program that pursues the hypothesis that they found refuge in the coastal wetlands of southern Lazia, the region immediately to the north of Campania. Long-standing Dutch geochronological research in this region has already shown the presence of a continuous sedimentary record for the period of interest, and the team recently identified, besides the Avellino volcanic ash itself, two more ash layers that will function as chronometric markers for yacht individuals in this region. Using a combination of archaeological, archaeological and paleo-ecological approaches, the Groningen/Leiden team is using these indicators to document the significant demographic, environmental and cultural impacts that are likely to result from the presence of the postulated Early Bronze Age refugee population in South Lazia. 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.

TH1-33 Abstract 02
Phenomena of migration on Chalcidice

Author - Danik, Oliva, University of Basel, Basel, Switzerland (Presenting author)
Co-author(s) - Chaclickia, colonialisation, local identities

Presentation Preference - Oral

The Chalcidice, a peninsula in Northern Greece, formed since early times a transit area and can be interpreted as the endpoint of migrations. While it was called by the Greeks of the south “The peninsular in Thrace”, the toponym “Chalcidice”, which is used from the 2nd century AD onwards for the whole peninsula, was related before only to the area of the settlement of the Chalcidians. The origin of the name is controversial from chalcios (copper), from the city Chalkis on Euboea or from the so-called Χαλκιδική, a Greek tribe which settled in the area during the migrations of the 2nd millennium (Hdt. 7:185).

Beside the Chalcidians settled numerous populations on the mainland and the three prongs Pallene, Sithonia and Aite. The return of the heroes of the Trojan War which reflect the movement of tribes is displayed in the mythical founding of the Chalcidian cities Aineas by Aeneas and Solone by Proteasileis. The rich resources from the area (timber, fertile land, mineral deposits) are central factors for the intensive colonisation in 8th/7th century BC. Settlers from Euboea, Andros, Conthi founded various apokoliai on the Chalcidice which shaped the region during the 6th 5th century BC. Cultural changes are connected through the history of the Chalcidice with the annexation to the Macedonian kingdom (349/48 BC) and when the Chalcidice became part of the Roman province of Macedonia (168 BC).

Based on this ethnic complexity the social dynamics of the microcosm of the Chalcidian peninsula should be investigated. The presentation provides on the basis of literary, epigraphical, numismatic and archaeological sources an overview of the methodical instruments which can be used to analyse the impact of new settlers on the local populations in this specific area. The aim is to analyse with a focus on the religious context the patterns of migration.
Interpreting the Archaeological Record

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 context, content 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 artifacts, 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 headstages, elk antler mattocks, bone bodkins and auroch bone scraping tools were made, used and deposited at c.9000 cal BC in North-Eastern Britain.

TH1-34 Abstract 05

Bone functional adaptation in the femur: a quantitative analysis in historical populations

Author: Dr. Simonit, Francesco, Monfalcone, Italy (Presenting author)

Keywords: computed tomography, migration period, moments of inertia

Presentation Preference: Oral

Bone is responsive to mechanical stimulation. Working aspects and social conditions are able to bring out significant skeletal alterations, which can be revealed in postmortem. Quantitative evaluations of the markers of occupational stress (MOS), in particular in the lower limbs, have been provided through the analysis of the cross section geometry of the diaphysis.

Some historical populations of Friuli Venezia Giulia (North-Eastern Italy and Slovenia) have been studied with quantitative MOS methods. The activity patterns were already known for every group, especially about the loads to the lower limbs. Femoral cylindroids were obtained by Multidetector CT scan of midshaft femur. Average values of the cross section geometrical properties (areas and second moments of area) have been calculated to evaluate bone functional adaptation in each cylindroid. Furthermore, the means of the moments of inertia for the cines of both sides have been assessed. This latter method has no evidence in current literature and its utility is object of study by our group. The analysis of the outcomes has shown that this methodology is able to give a good discrimination of the samples in respect of the different levels of mechanical use of the lower limbs. In particular, moments of inertia have been turned out highly sensitive. This working and cost-effective technique might represent a useful non-destructive and operator-independent method in bioarcheology and could be useful to evaluate and compare the MOS of historical populations.

TH1-34 Abstract 06

The investigation of Early Slavic sites in North-Eastern Germany in the last 25 years. A review

Author: Dr. Schneeweis, Jero, 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 an important research topic. This period of intense investigations and acute debates came to a certain end at the turn of the millennium, when some of the most important summarising works were published. Since the first decade of the 2000's the extent of Slavic archaeology in Germany is decreasing, as measured by academic research in this field. Contemporary directions in archaeology are often focusing on more theoretical approaches and provide new perspectives on well-known research issues, while rescue excavations keep on being the main source for providing new data. Nevertheless, Slavic archaeology was the topic of academic research programmes in the last decade, too.

TH1-34 Abstract 01

From Temples to Towns: The Role of Sanctuaries in Urbanization Processes

Author: Dr. Fernández-Gótz, Manuel, University of Edinburgh, Edinburgh, United Kingdom (Presenting author)

Keywords: Identity, Religion, Urbanization

Presentation Preference: Oral

From the Mesopotamian ziggurats to the urban sanctuaries of the Greek polis and the public spaces within the Late Iron Age oppida of temperate Europe, religion appears to be an essential element in most urbanization processes, being at the root of the fusion of previously scattered communities. In some cases it has even been determined that the existence of a place for cult activities preceded the concentration of a significant number of people or even the fortification of the area. Drawing upon different archaeological case-studies and historical comparisons, this paper will explore the crucial role of sanctuaries as focal points for social aggregation and collective identity construction.

TH1-34 Abstract 02

Taxonomy, Archaeology, and Ethnology: Myths and Realities for Prehistoric and Modern Settlements

Author: Prof. Zubrow, Ezra, University at Buffalo and Toronto, Buffalo, United States of America (Presenting author)

Keywords: Demography, settlement, archaeology, Ethnography, ethnology, international, Taxonomy, classification, ontology

Presentation Preference: Oral

This study examines ethnographic and archaeological settlements on a worldwide basis, and presents the results of testing various models against the available archaeological and ethnographic data. Generalized settlement taxonomies from several
TH1-34 Abstract 03

How clustered were clustered settlements really?
A case study on the Gtathulyuk West Mound

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Co-author(s) - Regasch, Jana, Flinders University of South Australia, Adelaide, Australia
Keywords: Architecture, Chalcolithic, Neolithic
Presentation Preference - Oral

This paper will demonstrate how modern, small-scale approaches towards architecture analysis question traditional views on the inner workings of a clustered settlement. Using our recent excavations on the Gtathulyuk West Mound as a case study, we will scrutinize whether a settlement that visually appears clustered to the archaeologists actually functioned like a house cluster in the past. After 6500 BC, the settlement of Gtathulyuk experienced fundamental changes in its socio-economic makeup, which are expressed in alterations of the settlement layout and organization. In the uppermost building levels of the Neolithic East Mound the transformation of a tightly clustered and large agglomeration of houses into a series of individual houses or house clusters with open areas between them. At the same time, the tightly integrated social structure that characterized the site before 6500 BC loosened when households started to be economically more independent. During the following Early Chalcolithic period (ca. 6000-5500 BC), there seems to have been a return to dense clustering on the West Mound, suggesting another change in social structure. However, ongoing work on the formation processes of the built environment on the West Mound questions whether the buildings were actually all in use at the same time, which provides a new perspective on the use, function and meaning of settlement space of Neolithic and Chalcolithic settlement mounds.

TH1-34 Abstract 04

Spatial and social patterns in LBK Neolithic settlement

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Keywords: built environment, community organisation, spatial organisation
Presentation Preference - Oral

This paper focuses on the results of a study aimed at examining the relationships between neighbouring LBK houses based on analysis of location of activity zones related to the houses. The social and spatial organisation of LBK settlements is still under discussion. Usually the houses are perceived as independent, self-sufficient units within a village. Based on the research on 59 longhouses recorded at two large, multi-phase LBK settlements in southern Poland we would like to present more complex image of the settlement organisation.

Considering chronological relations between the houses, we analysed the spatial and functional diversity of features located around the longhouses and artefacts found there. This analysis allowed us to identify (1) ‘dirty zones’ interpreted as possible places of household activities and intense deposition of waste, and (2) ‘kitchen zones’ interpreted as places associated with processing and/or storing of food. The ‘dirty zones’ are associated with accumulation of artefacts (pottery and flints) recorded usually in lateral pits and rubbish pits, and situated on one side of the house. The ‘kitchen zones’ are characterised by the presence of features associated with direct use of fire, sunken-floored huts and grain remains.

The location of the zones around particular houses was varied. However in most cases we recorded a connection between the location of the zones and a neighbouring house of the same or earlier phase. The spatial analysis indicates that the activity zones have been probably used by inhabitants of more than one longhouse. This shared space can be an indicator of close social relations (e.g. kinship) between them.

TH1-34 Abstract 05

Activity Zones and Community Formation:
The Role of Spatial Structure in Early Nucleated Villages

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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 activity areas and activity zones, is an essential aspect for understanding craft specialization, cross-craft interactions, power structures, inclusion/exclusion, and a host of other social relationships. Along with multiscalar and diachronic approaches, comparative spatial analysis are an essential tool in understanding the influence of nucleation on the processes of everyday life. Drawing on ethnographic and archaeological comparisons from the Near East, Europe and eastern North America, this contribution examines different use of space in different types of sites during the Late Neolithic on the Great Hungarian Plain. I argue that different types of sites, even if they are very subtle, show different spatial patterning of houses and activity zones. Furthermore, by increasing the social significance of identity, while exposing people to a greater number of communities, these differences were instrumental in facilitating the socio-political changes that accompanied settlement and population aggregation.
deceased were buried in the nearby cemeteries (most of them discovered by chance) or, in few cases, inside the settlement. This situation is a consequence of the actual state of research, with systematic excavations performed mostly on the mounds. Recently new post-disciplinary research made in Bulgaria (e.g. Podtopcha) and Romania (e.g. Pietrelcina, Sutana) led to discoveries that revealed archaeological structures outside the tells that attest intensive activities and habitation. This situation brings a whole new perspective on the relationship between the nucleated tell settlements and the various activity areas from their vicinity, including the funerary areas. Further research will focus on these variables in searching for rules and exceptions, with the help of GIS analysis techniques. The main advantage of GIS approach is that it allows the ability to model and visualize spatial trends that would be hardly noticed and time consuming if only traditional methods were used.

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

TH1-34 Abstract 09
Kernave Town in 13-14 Centuries: Social and Cultural Pattern of Community

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Keywords: community organization, The Middle Ages, towns
Presentation Preference - Oral

The Eastern Baltic region in a European context is distinguished by its peculiar historical development. For a long time, there was no state, no Christianity and no towns here. Small, isolated, poorly stratified agricultural communities lived here till the 13th century. German Knights founded the first medieval towns in the margins of this region in the 13th century. Meanwhile, the Lithuanian state emerged on the basis of the pagan tribes (Lithuania was 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 Kernavė, 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, Kernavė 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 Kernavė. The most important archaeological objects of that period in Kernavė are defensive systems of hill forts, the upper and lower towns, and inhumation and cremation burial sites. These structural parts of medieval Kernavė are associated with the activity of different social groups. The central hill-fort was the residence of a duke. It was surrounded by three different functional 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 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, was also the upper river terrace, was built up by the homesteads of craftsmen. The activity of certain social groups is clearly distinguished by the numerous artifacts and ecofacts. For example, the residence of a duke was identified by the abundance of especially luxurious imported goods. Meanwhile, the number of finds in defensive hill-forts is relatively small but they are distinguished by powerful fortifications. It should be noted that there were no artifacts connected with more intense agricultural activity found in any of the investigated locations, indicating the non-agrarian character of the community. Furthermore, these investigations illustrate the importance of socio-stratification and geography of society – there are obvious cultural and confessional differences of Kernave residents in different town areas. The artifacts discovered in the lower town are clearly of local Baltic origin, whereas the majority of artifacts discovered in the upper terraces are continuations of the Slavic jewelry traditions. It may be that two different Hanseatic routes (inhumation and cremation) could be related with the communities of different confessions. Therefore, the research shows that in Kernavė 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 11
Emergent Complexity and Neolithic Settlement Nucleation on the Great Hungarian Plain

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Keywords: Great Hungarian Plain, nucleation
Presentation Preference - Oral

The development of new social, economic, and political configurations frequently result in fundamental changes in settlement networks and settlement organization. In stark contrast to the previous period, the Late Neolithic archaeological record of the eastern Carpathian Basin indicates a settlement distribution of spatially discrete polities with multi-tiered settlement hierarchies surrounding therefore unprecedented, sizeable centers in the region.

In this paper, we focus on tells and large Late Neolithic settlements on the Great Hungarian Plain and in the adjacent regions in order to demonstrate how the spatial analysis of built landscapes at various scales can aid our understanding of prehistoric socio-political organization.

The remarkable increase in social and economic complexity during the later Neolithic brought about novel social mechanisms and institutions to assure community integrity in these large demographic, economic and political centers. We argue that considerable differences in their layout reflect a high degree of variability and resilience within similar egalitarian societies. The paper also 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.
TH1-34 Abstract 12

Nucleated settlements in the Eneolithic of south-eastern Poland?

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At the beginning of the fourth millennium BC, in south-eastern Poland (historical province of Lesser Poland – Podolia Minor) appears a new archaeological unit called Funnel Beaker culture (TRB), in the place where earlier units of the so-called Danubian Neolithic originated. From ca. 3600 BC, the growth of the area occupied by some settlements of this culture can be seen; this process seems to intensify with time. It is possible that such big settlements gained the status of micro- or regional centers, around which the whole settlement network was organized. There are opinions that a two- or even three-tier hierarchical system of the TRB settlement formation was formed in that time. At the end of the fourth and in the first half of the third millennium BC, the biggest sites of the TRB reached a size of approx. 20 hectares. Because of this fact and due to the disappearance of most of the smaller sites, one can assume that a greater part of the local populations concentrated in these big settlements. Interestingly enough, such large sites are often characterized by archaeological materials of a mixed character. The so-called Beaker-Baden Assemblages in western Lesser Poland are the classical example of such correlation; i.e., they are known from phases IV and V of the site of Broncicze, the Prickolo 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 Ziotka, the Sandomierz district (ca. 2900-2600 BC), the widespread coexistence of elements of the Baden culture, the Globular Amphora culture and the Corded Ware culture were recorded. It is significant that this site is actually the only settlement of the local archaeological unit called Ziotka culture. Other sites of this culture are cemeteries and numerous single graves. Therefore, it can be assumed that the concentration of the whole population in one central point of the settlement area, this time of the mezio-region scale. The presentation has the objective of clarifying what kind of economic processes and social structures conditioned the emergence of big, 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 analyses were performed including: (1) the internal arrangement of anthropogenic structures within big settlements, (2) the internal dynamics of their development, (3) the location of such sites in terms of environmental conditions, (4) their potential activity zones, (5) the degree of human interference in the environment around them, and (6) the relationship between them and other settlement formations. Comparative analyses have been recently performed based on the TRB site of Mozgawa (Pińczów district). They are based on the results of surface surveys, geomagnetic prospecting, excavations as well as palaeoenvironmental studies.

TH1-34 Abstract 13

Organizational variability of Bronze Age nucleated settlements in Hungary: a long-term approach

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Keywords: Bronze Age, fortified settlements, Hungary

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.

TH1-34 Abstract 14

Spatial patterns of Nuragic sanctuaries inside settlements and in the countryside of Sardinia

Author - Dr. Bausing, Ruth, Römisch-Germanische Kommission, Frankfurt, Germany (Presenting author)
Keywords: GIS analysis, landscape archaeology, Nuragic culture

Presentation Preference: Oral

Sanctuaries of Nuragic 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 monumental buildings is still debated and barely understood. The Nuragic civilisation developed in the Middle Bronze Age and Early Iron Age, from about 1900 – 730 BC (IMB to EIA). Nuragic settlements were spread over the entire island (more than 6000 are still visible in the landscape), and the Nuraghes can be subdivided into 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 landscapes. In contrast, sacred monuments or areas are less frequently identified. While for the earliest phase of the Nuragic civilisation no mere sacred places can be identified, they gradually become visible in the wayseal of giant tombs and in megaron temples. From the beginning of the LBA a preference for fonts and wells can be observed, furnishing in water sanctuaries of finest marble in the MBA and EIA. The sanctuaries are of different characteristics, some of them being quite remote while others were integrated with nuraghes and Nuragic complexes. A few of them are rather large, consisting of different buildings, partly surrounded by huts, built for large groups of visitors (sometimes called ‘federal sanctuaries’, e.g. Santa Cristina–Paulilatino or Santa Vittoria – Sanli); others are more domestic, only suitable for smaller congregations. In the MBA the collective workforce seems to be shifted from the Nuraghes to the sanctuaries. Additionally, a change in the skills and preferences of marble can be observed. Though the actual building of the Nuraghes ceases, they survive party in conversion or also as sculptured motifs of stone that was treasured in many of the sacral and/or meeting places. The refined religious practises observed somehow display changes in collective understanding of their surroundings manifested in the exploitation of fonts and wells. The processes are not fully understood, and were probably influenced by intensified contacts with different cultures of the Eastern and Western Mediterranean.

The study researches the interaction of the sanctuaries with different natural and cultural aspects within a GIS. The reference to water, other resources and infrastructural aspects are investigated, as well as the clusters of sanctuaries they relate to, but also to other cultural patterns such as votive deposits (differentiating local and imported materials). In case studies it also takes into account the patterns of sanctuaries located close to or within settlements, and the ways in which they were incorporated into new settlement foundations or added to existing settlements.

Attempts to interpret the Nuragic civilisation and their features are numerous and manifold. Scholars claim models from elite structures to egalitarian systems. The study finally discusses the results in regard to different theories currently discussed.
such structures. Due to the relatively small size of palisades and ditches enclosing chieftains’ farmsteads, their defensive function seems rather unlikely. The purely prestigious function cannot be ruled out. Assuming that they played a utilitarian role, they might have been used as cattle kraals. Horses breeding cannot be ruled out either. The term chieftain’s farmstead suggest that they were used by people with higher social status. Archaeological finds from these sites, however, do not confirm it. A good example is the site Wojkowice 15. Both a chieftain’s farmstead and an open settlement organized along a communication route were discovered there. No significant differences between finds from the two areas was noted. On the contrary, they were characterized by high similarity. In terms of forms of features related to production no major discrepancies were noted either. But the question remains why two groups of people living next to each other opted for completely different forms of spatial organization.

TH1-34 Abstract 16
Settlement mounds: A long-term analysis of the settlement organization in the Iron Age
Author - Phil 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 village offers detailed analysis of the long-term social organization of rural villages in South Scandinavia. The paper will present a case study from northern Jutland, Denmark to discuss how spatial divisions within nucleated settlement mounds could regulate the socio-economic patterns and dynamics of prehistoric 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, Søndereskov 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 with some similarities to those described above, but there are also differences. This may indicate that there were underlying social-cultural norms or rules in how these village communities should structure their settlements and farmsteads which were maintained by these communities over several generations. In this paper, I will present several Early Roman Iron Age settlements excavated by Søndereskov Museum in a limited geographical area of southern-central Jutland.

TH1-34 Abstract 18
What does settlement layout tell about the community?
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Keywords: ethnoarchaeology, interpretation, settlement
Presentation Preference - Oral

The layout of a settlement reflects long-term processes and mutual interactions that occur among many variables. Sometimes the factors that shape a settlement are the result of various deliberate decisions, but indirect effects also play a role in these processes. In large, complex archaeological site, we usually excavate and observe only parts of settlements, and thus we find that many of the components are missing. Therefore, especially in prehistoric sites where there is no predictable site plan, it is difficult to interpret the community by studying the site. This paper will discuss the relationship between the structure of a community and

the settlement layout and the factors that make a settlement nucleated, dispersed or agglomerated, with an ethnoarchaeological study in Central Anatolia.

TH1-34 Abstract 19
The creation of powerful places in Etruria
Author - Dr. Stoddart, Simon, University of Cambridge, Cambridge, United Kingdom (Presenting author)
Keywords: Etruria, Genealogy, Hierarchy
Presentation Preference - Oral

The paper will examine the processes underlying the construction of powerful places in Etruria. On the one hand, the landscape of much of Etruria was dominated by what have been defined as prime centres in studies of political geography. On the other hand, burial evidence indicates the retention of counterweighting 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. Fulimante, Francesco, University Roma Tre, Roma, Italy (Presenting author)
Co-author(s) - Prof. Guidi, Alessandro, University Roma Tre, Roma, Italy
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Keywords: central italy, communication networks, urbanism
Presentation Preference - Oral

Communication infrastructures are emerging complex structures: they are not completely random, neither are they entirely planned according to a predefined project especially when there is no unified political framework. Transportation networks can be regarded as an epiphenomenon of social interactions and interactions between societies and environments. At the same time, they influence the development of past societies (they enhance trade dynamics affecting the prosperity of a civilization) and their complexification (e.g. emergence of urbanism). There is a feedback loop. By analyzing and comparing fluvial and terrestrial communication networks in Etruria and Latium vetus between the final Bronze Age and the Archaic Era with a newly developed Network approach this paper shows the similarities and differences between the two regions and contributes to explain why in the fifth to fourth century BC the Roman 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 Çatalhöyük
Author - MA Hordecki, Jędrzej, Adam Mickiewicz University, Kościan, Poland (Presenting author)
Keywords: Çatalhöyük, Hellenistic, settlement
Presentation Preference - Oral

Çatalhöyük is one of the most well-known archaeological sites. This fame is largely the result of Neolithic strata excavated there. However, this place was occupied in other periods as well. Evidence for this are registered both as on-site finds and, more importantly, remains of buildings from post-Chalcolithic periods. Because of its particular position, both at the regional scale of the Konya Plain and within Anatolia, Çatalhöyük played a specific role. Excavations at the site revealed strata and remains of settlement from Bronze Age, Phrygian, Hellenistic and Muslim Periods. Evidence for the first and the last periods were relatively scarce. However, finds and strata from the Phrygian and Hellenistic Periods indicate a significant settlement from the 5th to 2nd century BC. Because of this, Çatalhöyük is a very good example of settlement characterized by diachronically visible social and economic complexity and cultural heterogeneity. The theme of my paper is to present the results of an analysis of late archaeological strata registered in the TP Area. Phases of settlement presented in the first part will become a base for further interpretations. From this,
it will be possible to show organizational variability of space, which will be a starting point for interpretations focused on changes in perception of this place. In the result in my paper, I will indicate the most important economic and social changes that took place in Câşălurile. That will be the answer not only for the question about the role of changes on site or in the region but also at the wider scale of Anatolia.

**TH1-34 Abstract 22**

**Comparative Study of Settlement Systems in the Bronze Age and the Medieval Age**

**Author:** Dr. Pusztraini Fischl, Kára University of Miskolc, Miskolc, Hungary (Presenting author)

**Co-author(s):** Pusztraini, 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 Borosod 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:** Csukor, Péter, Móra Ferenc Múzeum, Szeged, Hungary (Presenting author)

**Co-author(s):** Váczi, András, Herman Ottó Museum, Miskolc, Hungary

**Keywords:** Bronze Age Hungary, Fortified settlement, Landscape, hierarchy

**Presentation Preference:** Poster

In the area of the Bükés-Cungrat loess table and the Banatinn, SE Hungary and W Romania, a series of large fortifications enclosed by ramparts and ditches emerged in the period of 1300–1100 BC (Rei. BrD–HaA1). These huge structures, often hundreds of hectares large, got into the focus of Hungarian and Romanian research only in the past decade (have got into the focus of Hungarian and Romanian research only from the past decade). The fortifications are surrounded by a series of smaller rural settlements, forming a three-tiered settlement hierarchy, indicating a fairly complex society. The function of these settlements is debated to some degree, as they have not yet yielded substantial domestic remains, and their interpretation as refugia or ritual centres is also possible. This new type of settlement indicates significant although, up till now hardly known social and economic transformations in the last centuries of the 2nd millennia BC, in the Late Bronze Age. In my poster I will summarise the results of the research focusing on one of these fortifications, Makó-Rivócs-Csipocsvar and its hinterland. This small, 42 hectare large fortified site is investigated within the framework of a wider, microregional settlement study and will be interpreted in terms of the socio-political make-up of the Late Bronze Age polities.

**TH1-34 Abstract 24**

**More than meets the eye: burial monuments and “landscapes of power” in late Iron Age Britain**

**Author:** Minkevičius, Karolis, Vilnius University, Vilnius, Lithuania (Presenting author)

**Co-author(s):** Czukor, Peter, Móra Ferenc Múzeum, Szeged, Hungary

**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.
**TH1-35 Abstract 01**

**Some remarks about the role of environment and society in building technology**

**Author** - Peinetti, Alessandro, UMR 5140, Paris, France (Presenting author)

**Keywords**: Building technology, Earthen construction, Ethnoarchaeology

**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 different cultural choices, building traditions, socio-economic contexts 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 on the relation between employed raw materials and techniques. The results of the Neolithic wattle and daub analysis from different sites in Piemont (Northwest of Italy) stress the role played by tradition in building practices. Some case-studies from the Italian Bronze age, focused on earthen walls and floors building techniques, could be used to explore how local and regional cultural choices, guided especially by socioeconomic needs.

**Keywords**: Building with mud in the Neolithic, Chalcolithic, experimental, Trypillia

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**Building technology, Earthen construction, Ethnoarchaeology, Theoretical and experimental studies** are encouraged.

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**TH1-35 Abstract 02**

**The Aftermath of Mud Houses: Degradation and archaeological site formation**

**Author** - Dr. Friesen, David, University of Cambridge, Cambridge, United Kingdom (Presenting author)

**Keywords**: archaeological site formation, ethnoarchaeology, mud structures degradation

**Presentation Preference - Oral**

A major interest in archaeological research of domestic sites since the Neolithic is associated understanding and reconstructing human activity which took place within archaeological mud structures. Yet, rarely archaeologists encounter mud structures preserved to similar conditions as they were during their initial habitation phase in the past. It is therefore crucial to understand the post-depositional processes involved in mud structure degradation and how they form the contemporary archaeological setting. This paper presents an ethnoarchaeology study, conducted in recently abandoned mud structures in two distinctive environmental regions: arid South Israel and temperate Northern Greece. The taphonomy of earth floors, mud brick walls, thatched roofs and microscopic activity remains was studied. Field observations and excavations were coupled with various microscopic laboratory-based analyses. The paper supplies guidelines to the identification of mud structure degradation, occupation deposits, thatched roofs and degraded mud brick material. The results of this study presents the importance of combining macroscopic and microscopic analytical methods to distinguish between various infill sediments in order to enable better interpretation of archaeological mud structures.

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**TH1-35 Abstract 03**

**Burning Down the House – Experimental Chalcolithic house construction and destruction by fire**

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**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, Kirovograd Oblast, Ukraine by a joint British and Ukrainian team of archaeologists and craftspersons. One of the houses was deliberately destroyed by fire in May 2015 to study the 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 mounds, which are as large as 320 ha. The most surprising result concerned the very large quantities of firewood needed to burn the house completely.

Couples with experimental work carried out in the United Kingdom using the same raw materials, this experiment has presented evidence which challenges existing theories of house construction. By adapting test methods from the study of the strength of concrete, masonry, and rammed earth construction materials, the effect of heating on the material strength of daub construction material was investigated in a series of compression and shear tests. The results challenge the theory that controlled burning of wattle and daub structures was used deliberately as a construction technique in Trypillian-Cucuteni houses.

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.

**Keywords**: Building with mud in the Neolithic, Chalcolithic, experimental, Trypillia

**Co-author(s)** - Peinetti, Alessandro, UMR 5140, Paris, France

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**TH1-35 Abstract 04**

**Build with earthen materials. The eneolithic site of “Ca’ Nova di Minerbio” (Bologna – Italy)**

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**Keywords**: building technology, eneolithic, soil micromorphology

**Presentation Preference - Oral**

The eneolithic settlement identified at “Ca’ Nova di Minerbio” (BN), in which excavation has not yet finished, can be dated in a Copper Age phase, during which there was a massive presence of the so-called ceramic “a squame”. The archaeozoological excavation shows how different construction techniques have been used to realize the identified structues: a wooden planing supported by vertical poles and completed with daub was employed to build the walls; earthen materials were used to shape floors and several fire structures as well.

We present here the rectangular “structure 1” (2 meters wide and over 6 meters long), formed of at least two closed spaces, and built with earthen materials. The employed technique is probably similar to cob, coupled with a wooden load bearing framework. The residential function of the structure is still not sure, mainly for the small size of the spaces (2 rooms, sized only 23x3 m). The building shows traces of fire. A technological analysis has been carried out, using a geoarchaeological approach, in order to understand the different choices in raw material selection and the employed building techniques. After an accurate characterization of the stratigraphy on the field, several micromorphological samples has been collected on both preserved
archaeological features and layers relating to deterioration processes of built features. Burnt 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

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**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 analyses 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)

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**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 half 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 traditions 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 Lillemere

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**Keywords:** Copper Age, Dwellings destroying or burning, Osmuntins culture

Presentation Preference - Poster

For the most part of the researchers the house is the main important social, ideological and economic entity of the society in Copper Age in S-E Europe. The materials used to build, the form, the inner space structuring, were seen like being representative
for different archaeological cultures. The moment of building, the utilization and the abandonment are the most important markers of the final chapters of a building life time.

The excavations from Hîrova and Borduani, both tells in S-E Romania, provided important information concerning the Copper Age lifestyle, more precisely the history of the Gumelnita housing.

The most frequent construction technique though consists of a trench in the bottom of which are driven a number of wooden stakes, fairly close together, supporting a lattice of branches to receive the clay. The walls and the floors are plastered with layers of different clay preparation. Usually having two rooms, each has its own rectangular oven. During their lifetime the houses have often been repaired and sometimes, modified. Disposed in rows, the buildings are separated by passageways.

Generally, the final period of their evolution started with the moment when the dwelling ceased to be used by its inhabitants on that purpose. The archaeological information demonstrates that the end of their evolution is not the same for all dwellings. Some of them were abandoned and decayed in time, others were intentionally destroyed and others were intentionally fired. The diversity of all these situations can be interpreted like the result of different causes, and suggest a more complex spiritual life of the communities of the Gumelnita culture in Vth mil. BC.

TH1-35 Abstract 10
The uses of architectural mud in karstic area at Neolithic: environments techniques and cultures

Author - PhD student Di Pascale, Ambre, University Paul Valéry - Montpellier III, Montpellier, France (Presenting author)
Presentation Preference - Poster

In the Languedoc region, we distinguish two main landscape settings: plain zones and karstic environments (called Garrigue). Plains are composed of lagoon areas, layers of gravel, alluvial aquifers. Karst wetlands presents typical cavital shapes, such as sinkholes or avens. The soil there is stony and composed of numerous limestone outcrops, while the sedimentation is low (Guthier, 1975). Both plains and karst wetlands were inhabited territories ever since the Neolithic era. However, the raw material resources that are directly available do modify the builders’ choices and highly affect the housing types. In the garrigues areas, one can find a large number of houses that have walls made of dry stones. Conversely, on the coastal plain, unbaked clay architecture was proven on several sites, such as La Capoulière (Mauguio, Hérault) or Mitra (Garons, Gard). Though, this kind of geographical determinism ought to be further qualified. Indeed, cases were seen where environment constraints have certainly been overcome by technical and cultural traditions and had a direct impact on the builders’ choices. In the Rhône plain, several dry stone houses were found. Yet these structures are established on soft substratum (Jallot, 2011). Likewise, in karst areas, the discoveries of the use of a combination of stone and mud are numerous. It is true that until recently, and particularly in karst environments, the excavation of settlements was essentially based on the recognition of remains from long-lasting materials – which often precluded mud remains. But new problematics are emerging thanks to the improvement and the adjustment of excavation methods specifically relevant for the study of mud construction materials. Bousargues (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 (Chazelies, 2008). Fortbousière (Villevieille, 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 Blau (Milaou, Aveyron), and earth pads were identified on the spot (Jallot, 2000). On the La Vayrasèze 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, 2004).

Thus, the use of mud associated with stone constructions in karst environments can be seen in roofs, coatings, as binding agent, on foundation or in various layouts. The currently available data is not numerous enough to establish significant recurrences, yet new prospects are emerging. Does the use of mud in construction satisfy technical and/or cultural needs? What is the real impact of environmental constraints on the communities’ choices in the Neolithic era? These questions highlight too little explored problematics, particularly regarding the complexity of building systems and to the involvement of the societies in its making.
Archaeological practice reveals a remarkable diversity of approaches to the management of archaeological heritage. Starting with increasingly complex methods of field research and survey, management approaches use laboratory-based analytical approaches and integrate interpretative models. These define the nature of archaeological sites, the natural decay and human processes that influence their survival, the evidence used for reconstruction and for methods of interpretation and display. From single case studies to more general, developed concepts of heritage management, an increasing spectrum of meanings and values engage and inform academic, managerial and social concerns. Financial restrictions and archaeological project limitations create new challenges for all, sometimes frustrating the development of archaeological heritage management practice. Archaeological agency is now faced with old and new constraints together with requirements and pressure to ‘perform’. This suggests an increasing and important role for the profession in cultural heritage management.

The theme invites discussion on issues regarding heritage management: defining cultural value, conservation methods, rationale for restoration, risk management, illicit trade, preventive and rescue archaeology, museum presentation and virtual museums. There is room for discussion on issues related to cultural-heritage regulation, management approaches, legislative and institutional aspects, interpretation, presentation and tourism development, etc.

**TH2-01 Abstract 01**

New approaches to engage farmers with buried archaeological heritage in the UK

**Author** - Weibber, Henry, University of Bristol, Bristol, United Kingdom (Presenting author)

**Keywords:** Engagement, Farming, Heritage Management

**Presentation Preference** - Oral

There have been a number of connections and interactions between the subjects of archaeology and agriculture throughout their histories. From the agronomic development of soil phosphate tests and their application by Arrhenius (1931) to archaeological sites, to the observed damage of archaeological sites by agricultural machinery. These connections have not always been pleasant, but most certainly have not always been unsavoury either.

Never the less, interactions between many farmers and archaeological practitioners often are based on mutual agreements, friendships, legislative enforcement or stewardship advice. This research presents a new approach to engage farmers using soil science; the growing knowledge base and understanding of our archaeological heritage, and the explosion of agricultural technologies to map and manage soil variability.

Through a case study approach, this research will gather data from both agricultural sources and archaeological sources to understand any implications that archaeological sites have on the surrounding soils. Could these implications be relevant for farm management and if so how might they engage farmers in ways that haven’t been done before? How do they interact with current stewardship options?

With new approaches it may be possible to encourage more farmer, or ‘farm management’, engagement with buried archaeological heritage and promote more tangible understandings of cultural sites to the agricultural community.
TH2-01 Abstract 02
Best-practice models for intensively used agricultural landscapes

Author: Dr. Strobel, Michael, Landesamt für Archäologie Sachsen, Dresden, Germany (Presenting author)
Co-author(s): Dr. Westphalen, Thomas, Landesamt für Archäologie Sachsen, Dresden, Germany
Keywords: Grassland, Precision Farming, Rural landscapes

Presentation Preference: Oral

In order to protect the rural archaeological heritage in Germany various strategies have been developed since 2010. The paper presents best-practice models of managing monuments in intensively used agricultural landscapes. Especially the conversion of ploughed sites into grassland as well as the application of precision farming systems are different approaches to a better conservation of archaeological remains at risk.

TH2-01 Abstract 03
Managing rural landscapes in southern England - two case studies

Author: Dr. Chadburn, Amanda, Historic England, Bristol, United Kingdom (Presenting author)
Keywords: Management, Partnership, Rural

Presentation Preference: Oral

The successful management of rural landscapes depends on good partnership working. This contribution to the Round Table will discuss two case studies from Southern England both of which contain some highly significant archaeological remains - the Salisbury Plain Military Training Area, and the Stonehenge and Avebury World Heritage Site, both of which have many and varied stakeholders and needs.

TH2-01 Abstract 04
Integrated Cultural Landscape Planning at Ancient Corinth, Greece

Author: Prof. Wright, James, American School of Classical Studies, Athens, Greece (Presenting author)
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Co-author(s): PhD Sanders, Guy, American School of Classical Studies, Athens, Greece
Keywords: Cultural Resource Management, Heritage, Landscape

Presentation Preference: Oral

An integrated collaborative master plan has been developed between 2014 and 2016 to protect, preserve and present the 6 square kilometer area that encompasses all the natural and cultural components of the Landscape of Ancient Corinth, Greece. It comprises the ancient harbor at Lechaion, the ancient city, and the citadel of Acrocorinth. These include mixed natural and heritage zones including the (a) wetlands and ancient harbor facilities of Lechaion and the mixed industrial and agricultural region of the plain; (b) the village of Ancient Corinth and its agricultural outskirts in which are situated the remains of the ancient city; and (c) the agricultural and uncultivated nature zone of the slopes of the great fortified citadel of Acrocorinth. These remains contain over 8,000 years of human occupation with some 270 monuments from the 6th c. BCE through the 19th c. CE still visible for visitors. The planning group is an official committee of the Ministry of Culture, Hellenic Republic, consisting of staff from the Inspectorate of Antiquities of Corinth, the American School of Classical Studies at Athens, and the Ministry of Culture. Essential partners of the team are the Ancient Corinth, Greece – Oral

TH2-02 Abstract 01
Who commits ‘heritage crimes’?

Archaeology, the law, and civil rights in Austria

Author: Prof. Karl, Raimund, Prifysgol Bangor University, Bangor, United Kingdom (Presenting author)
Keywords: Austria, Civil rights, Heritage crime

Presentation Preference: Oral

Archaeologists frequently accuse others (that is, non-professionals) of committing ‘heritage crimes’. But is it a ‘heritage crime’ if there is no law broken? Is it not a ‘heritage crime’ if a heritage law is broken by professional archaeologists? And would it be a ‘heritage crime’, if the, say, a heritage agency were to excessively apply a heritage legislation to prevent entirely legal activities, and thus unconstitutionally restrict fundamental civil liberties? This paper examines who actually commits ‘heritage crimes’ in Austria; and whether it is truly those who archaeologists normally suspect, or whether the worst serial offenders are to be found much closer to home.

TH2-02 Abstract 02
Heritage crime and archeo-mafia: a case study from Italy

Author: Gannano, Andrea, University of Catania, San Giovanni la punta, CT, Italy (Presenting author)
Keywords: Archeo-mafia, Heritage crime, South Italy

Presentation Preference: Oral

“Heritage Crime” is a term used in the anglo-saxon world to define a wide range of criminal activities, from vandalism to illegal export of cultural objects, so strictly related with the cultural heritage issue. For its great effect, this topical subject has begun to appear often on newspapers and is attracting always more frequently academic (in particular criminological and archeological) attention. As has been already stated elsewhere, the range and frequency of crimes can vary dramatically across countries,
stated cities...and neighborhoods" (Ludwig and Kling, 2007, p. 491). The aim of our essay is to explore the concept of "heritage crime" in Italy, a country that, despite several international conventions and its national jurisdiction, continues to suffer from looting and destruction of archeological sites. In addition, this situation is exacerbated by the presence of organized crime (like Mafia and Camorra), in particular in Southern Italy regions, where are located a large number of UNESCO’s world heritage sites. So, considered this peculiar situation, the Italian word "archeo-mafia" has been created in order to explain the connection between heritage crime and organized criminal networks. Using new evidence and focusing on recent events that took place in the city of Vibo Valentia (Calabria), where an entire archeological area with Roman temples has been recently looted, we present, relying on criminological and archeological backgrounds, the paradoxical Italian situation; in spite of the extension and the importance of its extraordinary cultural heritage - Italy counts 50 UNESCO World Heritage Sites the most of any country on the World Heritage List- the legislative instruments are still unsuitable because they are distant from the correct interpretation of the entire problem and so related with an anachronistic vision. Specifically, there isn’t in fact a specifc type of offence about crimes against the cultural heritage, while at least 16 typology of criminal enterprises are recognized in the Italian legislation. Finally, we discuss the problems arising from this lack in the law related with the difficulty of punishment the culprits.

TH2-02 Abstract 03

Good Intentions and Bad Practice; conflicting values in heritage protection

Author: Campbell, Stuart, National Museums Scotland, Edinburgh, United Kingdom (Presenting author)

Keywords: Heritage Crime, Heritage Management, Portable Antiquities

Presentation Preference - Oral

The concept of heritage crime is often summed up by the image of the experienced and professional looter, motivated by financial gain and with some level of technical knowledge. While this model may apply to high profile cases of looting this paper will concentrate on less obvious sources of harm to the historic environment, in particular that grey area where bad practice or carelessness on the part of an individual can cross the line into criminal behaviour. This paper will focus on cultural attitudes, or different cultural perceptions of harm and importance which can lead to damage being downplayed or not seen as serious on the part of the perpetrator. This paper draws on experience of working directly with members of the public who find objects, not least metal detector users, and will draw on experiences which are often not discussed or considered at policy level. The role of the finder is often assumed role of the market in driving looting, arguing instead that much behaviour is driven by ‘single actors’, the finder or looter also being a collector, and the desire being to keep rather than to sell an object. Individual motivations include a complex mix of culture and preconceptions which might mean a site is damaged or an object not reported, often by individuals who act with good intentions. The cultural considerations which make an individual consider the law of little importance (while not considering themselves a criminal) will also be discussed. Running through all these issues are divergent and competing perspectives of why the past is important, and how legislation that seeks to protect the past may be perceived by third parties in a wholly different light.

TH2-02 Abstract 04

Museum Security: How big a threat is crime?

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Co-author(s): Grove, Louise, Loughborough University, Loughborough, United Kingdom

Keywords: Europe, Heritage crime, Museum security

Presentation Preference - Oral

Museums are an integral part of the cultural life of societies. Many house archaeological material, functioning as repositories for the archaeological record, as well as sites of public education and dissemination. In addition to their intangible value, many collections also have considerable financial value, and pose a temptation to thieves. In recent years, high profile art thefts from museums, embassies by museum staff, and even, regrettably, acts of terror, have drawn attention to the vulnerability of museum institutions as sites of crime and catastrophe. Museum security professionals are seriously challenged to respond to such potential threats, often working with less-than-ideal resources and budgets. There is also a developing scholarly literature around heritage crime in the context of museums (e.g. Benson and Fouché 2014, Hardy 2015, Grove, L. & Thomas, S. 2016, in press.) ‘The miro horn on display has been replaced by a replica: Museum security in Finland and England’, Journal of Conservation and Museum Studies.


References:


TH2-02 Abstract 05

The fight against archaeological looting in Spain. One research and development project

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Co-author(s) - Rodriguez Temiño, Ignacio, Conjunto Arqueológico de Carmona, Carmona, Spain

Keywords: Archaeological looting, Punitive power

Presentation Preference - Oral

In 2014, a group of archaeologists and lawyers began to work together in a research and development project, funded by the Spanish Ministry of Economy and Competitiveness. This research project was primarily aimed at improving the basis for an effective legal response against archaelogical plundering. Archaeological looting represents a serious threat to the survival of fragile and vulnerable special heritage. This threat is deployed both in sites on land and underwater wrecks. In Western societies, this iniquitous property loss creates social alarm because of the common interest in this property. Therefore, public authorities are constitutionally obliged to prevent it, or at least, to try to do so.

In Spain the response provided by the State and the Autonomous Communities in the fighting against archaeological looting seems to lack the sense of unity required. The inadequacy of many legal instruments, such as the Spanish Historical Heritage Act, other cultural legislation, and the Penal Code is very well known, as there are claims to reform this legislation. However, to achieve this and to improve the State’s response to this issue, the analysis of new data on real archaeological looting is required.

Archaeological looting, as with any other illegal activity, is difficult to quantify precisely. Therefore, in order to improve the State’s response to it, the Project that we presented seeks to collect, sort and analyze data that should be known, but that in fact is not: the filling of complaints about archaeological spoils. At present, in Spain there is a tragic ignorance about what happens to these complaints in each region, how many are concluded, how many are not, and what the causes of each complaint are. From the collection and analysis of this data, the Project proposes improvement measures.

The project’s main objectives are:

A) To improve the response to archaeological looting, both on land and underwater, through the adoption of minimum standards by the agencies involved in the fighting against this wide spread social problem, made as a result of the research project.

B) To make public, a structured body of data from different geographical areas referring to the handling of complaints about archaeological looting from what, for the moment, are only available in administrative, judicial, police files that are difficult to access.

C) To provide tools to facilitate the fight against underwater and land archaeological looting, such as training the staff involved (members of the Security Forces of the State, judges, officials, managers, etc.), and social awareness. Improving the public response to archaeological looting involves ensuring access to these goods for future generations.

In this communication the most important research results conducted in recent years will be presented.

TH2-02 Abstract 06

Greater awareness as prevention measure against illegal turnover of archaeological artifacts

Author - Kairiss, Latvian Academy of Culture, Riga, Latvia (Presenting author)

Keywords: archaeological artifacts at risk, crimes against cultural heritage, looting of archaeological sites

Presentation Preference - Oral

Although Latvian official criminal statistics does not contain data on illegal obtainment of archaeological artifacts, significant amount of illegal excavations (especially in the ancient burial places) and publicly available information regarding Internet trade of protected artifacts implies that national archaeological heritage is endangered. According to data provided by State Inspection for Heritage Protection every year about 20-25 criminal proceedings are started regarding looting of archaeological sites.
Different methods are being used in order to prevent and combat illegal obtainment and trade of archaeological artifacts – from explaining the significance of cultural heritage until improvement of legislative acts and introducing more severe punishment for correspondent offences. Proper implementation of any method could lead to positive results, however it is usually hard to find relatively efficient and at the same time speedy solution.

One of practical solutions of the problem has to do with enhancing awareness regarding protected archaeological artifacts and related issues because it would not be correct to assume that legislative acts already contain all the information needed for different audiences (e.g. buyers and traders of artifacts, persons who are interested in history, law enforcement officers etc.). Thus in December 2015 several cultural, law enforcement institutions and other institutions controlling turnover of cultural objects, under the guidance of Latvian Academy of Culture, started the development of “Digital catalog of Latvian archaeological artifacts at risk”.

The “Digital catalog of Latvian archaeological artifacts at risk” contains graphic and textual information regarding the most endangered national archaeological artifacts, as well as other information deemed to be useful for different audiences which could come into contact with archaeological artifacts.

The presentation will give insight into aspects of illegal obtainment of Latvian archaeological artifacts, characterize the “Digital catalog of Latvian archaeological artifacts at risk” and opportunities of its usage.

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**TH2-03 Abstract 01**

**ICOMOS’ Charter on Interpretation of Cultural Heritage Sites: The Global Strategic Approach**

**Author:** Hodges, Sue, ICOMOS ICIP, Port Melbourne, Australia (Presenting author)

**Co-author:** Deufel, Bonnyrigg, United Kingdom

**Keywords:** Cultural Heritage, ICOMOS ICIP, Interpretation

**Presentation Preference:** Oral

ICOMOS’ Scientific Committee on Interpretation and Presentation of Cultural Heritage Sites (ICIP) is responsible for the review and promotion of the ICOMOS charter of the same name, adopted by the General Assembly of ICOMOS in 2008. Interpretation is defined as all activities intended to heighten public awareness and enhance understanding of cultural heritage sites, including publications, online content, and on-site installations such as panels and immersive multi-media experiences. As such, interpretation plays a key role in facilitating people’s engagement with heritage and telling diverse heritage stories in an attractive, informative manner. However, public and private decision-makers around the globe have varying degrees of awareness of interpretation as professional heritage practice, and there are varying professional standards in different countries too. The aim of ICIP is therefore to define and promote the basic objectives and principles of interpretation and to be a global advocate for professional interpretation of cultural heritage sites.

At the end of 2015, having appointed a new board of officers, ICIP began a strategic review of the Charter and the committee’s main activities. This session will discuss the charter in the context of this review and wider developments within the fields of interpretation and heritage more broadly. In particular, the session will contextualise the principles and objectives of the charter for interpretation, and consider recent challenges to what has been described as a Western approach to heritage management and their implications for the Charter and the discipline of interpretation.

The session will outline the strategic priorities established by ICIP for the next three years on the basis of the review, and introduce participants to the activities that have been planned in response. A specific consideration of the session will be the global application of interpretive principles to meet local requirements. The purpose of the session is to familiarise participants with the ICOMOS Charter for the Interpretation and Presentation of Cultural Heritage Sites and the discourse of interpretation, and to highlight where ICIP’s work may link in with participants’ own professional practice and organisations.
TH2-03 Abstract 02
Moesgaard Museum - considerations on an upcoming exhibition

Author: Dr. Linus, Jette, Moesgaard Museum, Odsher, Denmark (Presenting author)
Keywords: Display, Exhibition, Medieval
Presentation Preference: Oral

Moesgaard Museum is the among the largest and is certainly the newest archaeological and etnographical museum in Denmark. Our new exhibition hall, that opened in 2014, is the frame of permanent exhibitions of primarily Danish archaeology, while temporary special exhibitions highlights international research, lately in an exhibition featuring China’s first emperor Qin Shi Huang and his terracotta army in the world. Although Moesgaard has enjoyed two periods of greatness, for nearly a century it has experienced a prolonged economic decline and accompanying social disintegration.

Designed by Henning Larsen Architects, the exhibitions hall has won several international rewards, lately the architizer A+ award AA.

Currently the permanent exhibitions centered on the Bronze Age, Iron Age and Viking Age is open, while the permanent exhibitions of the Stone Age and the Middle Age is under preparation. The aim of this paper is to present a curators view on how we plan our upcoming addition to the permanent exhibition, this time centered around the medieval period. The paper will focus on the interaction between hall and display, including reflections on scale and purpose, process and selection of topic and modes of display as a way of engaging both the community and our international visitors.

TH2-03 Abstract 03
Object-based (Distance) Learning: Local and Global Educational Enrichment from Corinth Excavations

Author: Petrole, Katherine, American School of Classical Studies at Athens, Ancient Corinth, Greece (Presenting author)
Keywords: community engagement, museum, outreach
Presentation Preference: Oral

Over the last 120 years, research at Corinth Excavations in Ancient Corinth, Greece, conducted by the American School of Classical Studies at Athens (ASCUSA), has produced a wealth of academic publications. Part of the mission of the ASCSA, however, in this era of producing research, is to disseminate the results to wider audiences. Just nine years ago, Corinth Excavations began facilitating occasional educational programs in the museum and on the site of Ancient Corinth for Greek schoolchildren and teachers on a variety of subjects. For example, a program held at the Asklepieion included a dramatic interpretation of Epidavrian healing inscriptions.

Corinth Excavations now has a dedicated staff member for educational outreach thanks to the generous support of the Steinmetz Family Foundation Fellowship; the Museum Fellow is creating enriching lesson plans for Greek and American curricula. In this way, Corinth Excavations can reach learners locally and globally to tell stories about the past. The lesson plans are designed to fit American learning standards for the sixth grade, when students spend one year learning about the entire Eastern Hemisphere; however, suggestions for educators are provided in the lessons for adaptations for younger or older learners.

The lesson plans are based on objects from Corinth Excavations representing periods from antiquity to the present. Themes include water management, healing practices, mysterious rituals, analyzing evidence from the Classical period, cultural achievements of the Roman Empire, pottery designs and styles of the Byzantine Empire, the development of Christianity, interpreting Frankish skeletal material, and taking a digital field trip.

The purpose of the outreach effort is twofold: to create communication between archaeologists and historians who produce new and exciting results with the general public; and to inspire outside audiences to continue to learn about the legacy of Ancient Greece, Roman and Medieval culture. There have been successes and failures in the process of creating educational outreach as it is something new, innovative, and unparalleled for an excavation in Greece. But the successes have shown the power of objects; they tell stories, they inspire curiosity, and they extend learning beyond the classroom and into museum and architectural site.

Corinth Excavations is offering educators something they literally cannot get anywhere else: access to hundreds of thousands of images, videos, notebooks, drawings, plans, maps, artifacts, publications – that tell the story of our collective past.

In order to highlight over a century of research, the uniting message of our educational enrichment efforts is that Corinth was and continues to be a crossroads of cultural, religious, and economic activities for thousands of years. Outreach in Ancient Corinth aims to communicate these interactions among peoples through time and share the legacy of Ancient Greek, Roman and Medieval culture with future generations. In the mean time, it is a project that is changing the role of archaeological excavations and museums.

TH2-03 Abstract 04
The Govan Stones: Urban Renewal and Early Medieval Sculpture

Author: Prof. Driscoll, Stephen, University of Glasgow, Glasgow, United Kingdom (Presenting author)
Keywords: Church, Community, Sculpture, Telling Stories
Presentation Preference: Oral

On the south bank of the River Clyde stands the church of St Constantine, a place of worship for approximately 1500 years. It is the oldest church in Glasgow and one of the oldest in Scotland. In archaeological terms it is most remarkable for a large collection of sculpture, dating from the 10th and 11th centuries, when Govan was the seat of the kings of Strathclyde. Subsequently during the Industrial era, Govan became famous for ship building and at the end of the 19th century was the leading centre for marine engineering in the world. Although Govan has enjoyed two periods of greatness, for nearly a century it has experienced a prolonged economic decline and accompanying social disintegration.

Perhaps the clearest sign of social decay has been the collapse in church attendance and associated social activities. Formerly the church provided a community focus that extended far beyond the Sunday service. As a consequence of this decline Govan Old Church is no longer the main parish church and has recently been taken over by a charitable trust. The main aim of the trust is to use the historical and archaeological assets of the church as a tool to promote urban regeneration. This paper will discuss the steps already taken to utilise Govan’s historical resources (http://www.thegovanstones.org.uk) and the plans for building a cultural centre which will provide a new social hub for the community. Special emphasis will be placed on the constructive role of archaeology in stimulating community interest and responding to government agendas of sustainability and economic growth.

TH2-03 Abstract 05
If the bomb falls

Author: Mag. art Paulsen, Charlotte Aakildgaard, Museum Skanderborg, Skanderborg, Denmark (Presenting author)
Keywords: Community, Hands-on, Interaction
Presentation Preference: Oral

How do you communicate the work of an underground Cold War Command Centre? During The Cold War Civil Defense Forces in Denmark had placed a number of Command Centre’s throughout the country to be prepared. The local community had monthly drills, training for the worst case scenario. Command Centre Skanderborg was placed in a bunker build by the German Luftwaffe during WW2 as part of their headquarters in Skanderborg. The bunker was rebuilt in 1963 and in function until 1993. The Cold War was a time of great fear throughout the world. For today’s young people, that can be a bit hard to imagine and understand.

In the process of deciding how to communicate the bunker and it’s function Museum Skanderborg teamed up with the local high school. Through discussion panel s 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.

TH2-03 Abstract 06
"Know thyself" or visitor experiences in open-air museums (case study of Belarus and Lithuania)

Author: Charapau, Nabzyana, Vilnius University, Vilnius, Lithuania (Presenting author)
Keywords: communication, open-air museums, visitor experiences
Presentation Preference: Oral

Archaeological open-air museums generate participatory multi-dimensional environment, atmosphere of illusionary past and immersive folk culture. The spacial design and variety of interpretation methods enable visitors to dive in history and experience cultural diversity by means of tangible and intangible heritage, dialogue and celebration; to rediscover their national and cultural identity or, in other words, get to “know thyself”, as Stansfield’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

Open up again: a local museum by the lake

The Greek archaeological museums of the 19th century, as well as their European counterparts are related to the development of the national states, constituting one of the key institutions as places where the nation could “weave” its history and culture. The archaeological museum in the last decades of the 19th and early 20th century becomes public, by giving the possibility of access to others than the managers and collectors. Thus, the current museum concept is defined as a creation of modernism as this was shaped during the Renaissance and survives until, approximately, the mid-20th century. On the other hand, along with trying to establish through collections and exhibitions an empirically documented truth, the museum seeks to elevate the past to an introduction of the present and the future. This intention is characterized by a holistic approach that will not examine the archaeological museum individually as a tool of the upper class, or an educational mechanism, a storage of precious artifacts, a space of national pride and individually, a field of developing a specific professional and scientific activity, exhibiting technique or local development lever. Instead, it will endeavor to highlight the field where the above engage and collaborate through reciprocal support or even conflict. The future museum will be an integral part of a uniform process that starts by identifying an archaeological trail and ends in the exhibit cabinet or in storage. In this context, archaeologists should meet with a number of other specialists—all in distinctive roles—in order to promote the composite knowledge of the past. This process should be guided by professional ethics and respect. Our proposal concerns the application of such a project in one of the most important museums in the world, the Museum of Olympia, as a vehicle of sophisticated museological practices that will contribute to the creation of the future museum.

Curation of 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 professional conferences held in Tsarist Russia; the 9th was held in Vilnius in 1893.

In the 1840s, when archaeology was first beginning to blossom, beginning as more of a vocation than a science, Count Eustachy Tyszkiewicz and his brother Konstantin moved from simply collecting Italian art to excavating approximately 200 barrows around their native Lithuania. The Russian word for what we call “artefacts” in English is 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 Tyshkevich brothers opened three rooms in one of their palazzos into the first local Museum of Antiquities, more than a curiosity shop. It was installed by the local people in its first year. In 1856, in concert with the anticipated liberalizing policies of new Tsar Alexander II, the collection was transferred to more space in the Library of the former University, which had been closed in 1832 following the Polish rebellion. Unfortunately for them, the second Polish rebellion of 1863 prompted the closing of this Commission, thereafter designated as only intended to be “temporary” and the redistribution of much of the museum to others, primarily Moscow’s Rumanseve Museum, a critical repository of historical artfacts.

One of the first orders of business following the rebellion was to re-curate the museum. Count M. N. Muraev, who would receive an honorary “Vilenskii” address to his surname in recognition of the favour with which he instigated the de-Polonization of the Northwestern Region (Lithuania and Belarus) organized a commission for the inspection of the objects on display in the Museum of Antiquities. The clash between Tyszkiewicz and the Commission, and the subsequent congress, illustrate the use of archaeological artifacts to dispute an identity during the Age of Empire.

The Euphronios Krater: from the Illegal Art Market to the Rebirth of a Museum

The Euphronios krater was 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 sites. Among other co-museums of the Euphronios krater another has been made by the same terracotta painter that demonstrates the way he was used to work and the different taste and technique in a period of twenty-thirty years.

In 2008 the Euphronios works were displayed in the temporary exhibition Hosto: Recovered Masterpieces from the National Museum of Villa Giulia in Rome and they were supposed to enter the permanent collection.

The location of the kylix and the krater in Cerveteri is the result of collaboration between the City of Cerveteri, the Southern Lazio and Etruria Archaeology Superintendence and the Lazio Region. On the tenth anniversary of the UNESCO recognition of the Etruscan necropolis of Banditaccia (2014), the krater have been transferred for a month at the Cerite National Museum, and they were supposed to enter the permanent collection.

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.
TH2-03 Abstract 11

Community archaeology as empowerment for a struggling society

Author - Granh Danielson, Benjamin, Pecia kulturar, Fors, Sweden (Presenting author)

Keywords: Community archaeology, Empowerment, Heritage as heritage

Presentation Preference - Oral

In 2013 "Dagens samhälle", a magazine for decision makers in the public sector wrote: "The trend is hopeless. 19 Swedish municipalities have shrunk every year for two decades. Twelve of them may have died out before the turn of the century. In 2070, Ljusnarsberg and Strömsund will be the first in line for the precipice, if the population continues to decline at the same rate as now." Imagine seeing a citizen in Kopparberg, the small town in the municipality of Ljusnarsberg, and waking up to that announcement! Well, you probably wasn't surprised, but still. My municipality has a sentence, a death sentence and a given date when it's all good, by time to pack the things and leave.

Several of the inhabitants in Kopparberg wasn't asked at all when national media called out the message. And the inhabitants in the other small municipalities in the former so proud mining district of Sweden is not asked for any opinion either. Meanwhile, a group of eleven artists that bought an old mine in the area thought "Hey, what about the locals, asylum seekers, art, music, heritage and the future of this place?" And suddenly, one year afterwards I was standing on an ice cold day with a director, journalist, artist, biker, a 23 year old dentist from Syria, an old man from Iraq, the local drunk, councilor and a bunch others, making an archaeological excavation of a public pinboard, with the overall theme: excavating the future of Kopparberg...

In this presentation I will give two examples of empowering the local community using heritage. The first example abow is in great contrast to the other, where local school children excavates an old cottage where the ferryman once lived. But both are examples of how heritage and archaeology can be used to revive history and let the locals be proud of their cultural heritage, weather or not they have lived there for generations or came there last week.

TH2-03 Abstract 12

JASA – the road from ‘irrelevant luxury’ to ‘archaeological jewel’

Author - Balen, Jacqueline, Archaeological museum in Zagreb, Zagreb, Croatia (Presenting author)

Co-author(s) - Bobra, Jelena, Zagreb, Croatia

Co-author(s) - Bukil, Ana, Zagreb, Croatia

Co-author(s) - Majnić, Marin, Zagreb, Croatia

Keywords: Depredation and the Historic Environment

Presentation Preference - Round table

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 Banara, where archaeologists worked on the future A5 motorway, discovering new and reviving old data on the region’s cultural heritage.

The region under study has been under tremendous amounts of financial, political and social stress, especially in the last 20-30 years due to its position next to two Croatian borders and its role in the Croatian War on Independence. Depredation of all possible sorts can, to this day, be noted in the area where jobs are sparse, where most entrepreneurs get swallowed up by larger companies and where culture is seen as an irrelevant luxury, no longer enjoyed even by the wealthiest.

From an archaeological point of view, Banara 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 idea of Dvorak salat (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 citizens, 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 01

Promoting and valuing community archaeology research in England

Author - Miles, Daniel, Historic England, Swindon, United Kingdom (Presenting author)

Keywords: Community group, Research, valuing

Presentation Preference - Oral

England has a long tradition of non-professional archaeological investigation, in particular through membership of local or country archaeological societies. The earliest county societies were founded in the mid-19th century and many still are actively investigating and researching their local archaeology. This research is often driven by local and personal interests, with the results disseminated within the group and through their own publications. This is a very different picture to the professional sector, which is guided by academic interests and the requirements of the planning system – to evaluate the potential of archaeological resources and to mitigate against their loss. Professional research is coordinated and managed through different research resources, including Historic Environment Records and Research Frameworks, which provide the evidence base and research focus with which investigations can be framed. These have been developed collaboratively by partnerships of commercial, local authority and academic archaeologists, with one main group of researchers, the community and volunteer groups missing. It could be said therefore that in England we accept, support and even promote archaeological investigation by the voluntary sector, but place less value on the outcomes and results of their work - i.e. not enough to include their work in our heritage management systems or invite them to be actively involved in the development of our research frameworks.

My contribution to the round table discussion will be to look into and discuss the issues in more detail with particular reference to a recent project, funded by Historic England (the UK government’s adviser on heritage). The main aims of this project are to address this issue by examining and evaluating the value or potential research value of volunteer investigations for enhancing Historic Environment Records and Research Frameworks. The project included a national survey of heritage voluntary organisations and examined examples of community group research outputs. It has provided us with a clear indication of the
Managing the archaeological heritage

is a key issue when collaborating with different groups and individuals, especially metal detectorists. More involved with the media and take more responsibility. Found by a detectorist in Espoo in autumn 2013. After recovery it received international media coverage, resulting in a debate over focus only on the value of the finds and not on the cultural historical significance. A good example of this is a medieval gold ring and published.

Frustration on both sides. However, it’s clear that the legislation is out of date. The law and regulations are also difficult to interpret, creating uncertainty.

 fich. 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.

As professional archaeologists we need to communicate better with the public and the media. A lot of media reports still focus only on the value of the finds and not on the cultural historical significance. A good example of this is a medieval gold ring found by a detectorist in Espoo in autumn 2013. After recovery it received international media coverage, resulting in a debate over redemptions. Many finders also report their finds to the media themselves. Thus the archaeological community needs to be more involved with the media and take more responsibility.

It’s also important to note that engaging with the public needs to go both ways and that it is an ongoing process. Mutual trust is a key issue when collaborating with different groups and individuals, especially metal detectorists.

Amount of research being undertaken by the voluntary sector, an assessment of its research potential and benefit for inclusion into our research resources and a direction for promoting the active participation and involvement of community groups in the development of professional research resources.

Issues of metal detecting in Finland

Author - Dr. Wessman, Anna, University of Helsinki, University of Helsinki, Finland (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 rearing 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.

Issues of metal detecting in Finland

Author - Liinevich, Siahei, Institute of history NAS Belarus, Minsk, Belarus, Republic of (Presenting author)

Keywords: archaeological collections, museum, stone shaft-hole axes

Presentation Preference - Oral

The role of non-professional involvement in the development of archaeology and the importance of public participation in the creation of the data base for archaeological research will be considered by the example of such category of archaeological finds as a stone shaft-hole axes. The study is based on the history of creation collections and researching of stone shaft-hole axes at the territory of Belarus. The first collections of the stone drilled artifacts in Belarus dates back to the middle of the XVI century. But they had a little connection with scientific approach and they explain the influence of the ideas of the Renaissance era to the magic stars. The main way of replenishment of these collections was redemption or confiscation. Another relationships with stone shaft-hole axes formed in the rural environment. Peasants have seen their pragmatic and magic sense in this category of artifacts. Since the XVIII-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 museums sometimes has better collection of stone axes then the state than the public museums.

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.

Stone shaft-hole axes: between professional and non-professional archaeology

Author - Niukkanen, Marianna, National Board of Antiquities, Helsinki, Finland (Presenting author)

Co-author(s) - Kuitunen, Jutta, National Board of Antiquities, Helsinki, Finland

Keywords: Heritage laws, metal detecting

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.

Blunt instruments or intelligent solutions?

Author - Moeller, Katharina, Bangor University, Bangor, United Kingdom (Presenting author)

Co-author(s) - Karl, Raimund, Prifysgol Bangor University, Bangor, United Kingdom

Keywords: heritage laws, metal detecting

Presentation Preference - Oral

Compared to the UK the heritage laws in Germany and Austria are much more restrictive when it comes to metal detecting. But are these stricter laws really an effective deterrent? If so, the number of metal detectorists should be higher in the UK than it is in Austria and Germany. However, due to the stricter laws, the actual number of metal detectorists in the latter two countries is unknown.

To compare numbers of metal detectorists in the countries mentioned above, this case study looks at metal detecting online fora, especially their membership numbers. These indicate that there are more metal detectorists in Germany than there are in the UK. This suggests that laws alone do not prevent people from looking for archaeological material. Laws do, however, influence other patterns of behaviour, particularly the reporting of finds to the authorities by their finders. Stricter laws do not seem to deter metal detecting, they deter finds reporting.
Thus, to ensure that as much archaeological information as possible is preserved or recovered and recorded properly by its finders, another solution must be found. Allowing for more public participation in archaeology in Austria and Germany might be one way to achieve this goal.

**TH2-04 Abstract 07**

**Ignored and forgotten: avocational archaeologists and the lithic assemblages from fieldwalking**

**Author:** Dr. Wright, Dene, University of Glasgow, Glasgow, United Kingdom (Presenting author)

**Keywords:** Avocational archaeologists, fieldwalking, lithic assemblages

**Presentation Preference:** Oral

Fieldwalking and the surface collection of lithic material on the Ayrshire and Wigtownshire coasts of Scotland has a long tradition dating back to the 1880s. This was in no small part due to the efforts of a number of avocational archaeologists, and their participation with Ayrshire and Wigtownshire Archaeological Association founded in 1877. The 1970s witnessed the last in this line of avocational archaeologists who undertook such tasks in Ayrshire and Wigtownshire. There was no tradition of fieldwalking in South Lanarkshire, inland and adjacent to East Ayrshire. Coincidentally, the 1970s heralded the advent of this activity in South Lanarkshire. Hugh McFadzean (1919-2008) commenced fieldwalking in the Avondale District, which continued unabated until 1981. His work as an avocational archaeologist also involved fieldwalking forays in East Ayrshire, Isle of Bute, Fife, Stirlingshire and Wigtownshire. Hugh’s fieldwork in these other locations continued until the 1990s. As a case study, this paper will look at his motivations to undertake avocational archaeology in Avondale, and consider his contribution to the archaeological record. It will also critically reflect upon personal curation and his research into the lithic surface collections, and the contradiction to the legal position in Scotland under Treasure Trove and the concept of bona vacantia. Finally, drawing upon my own research the importance of the surface collections of lithic material to academic enquiry will be highlighted.

**TH2-04 Abstract 08**

**Social Network vk.com and Archaeology: Sight from the East Europe**

**Author:** Dr. Thomas, Roger, Historic England, Swindon, United Kingdom (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 UK there are many communities and pages, where professional archaeologists introduce new information and last discoveries and try to do this using ‘nonprofessional language’. These information could help to understand better archaeological work to the non-professionals and to involve more people in science. In my poster I want to present some examples of these communities.

**TH2-06 Abstract 01**

**The road to a working party is paved with good intentions**

**Author:** Dr. Waugh, Karen, Vestigia BV Archeologie & Cultuurhistorie, Amersfoort, Netherlands (Presenting author)

**Co-author(s):** Dr. Hey, Gill, Oxford Archaeology, Oxford, United Kingdom

**Presentation Preference:** Oral

A draft proposal for setting up a working party to examine specific EIA issues was published in TEA 46. Following on from there, we would like to introduce the Round Table by presenting the progress made so far in defining aims and objectives for the working party. More importantly, the introduction should provide a structure for discussion and debate within the Round Table. It is hoped that the session will lead to a general consensus on a work programme that we can submit to the EAA Board for approval.

**TH2-06 Abstract 02**

**The EIA Directive and Archaeology: the example of England**

**Author:** Thomas, Roger, Historic England, Swindon, United Kingdom (Presenting author)

**Keywords:** EIA Directive, England, law

**Presentation Preference:** Oral

The EIA Directive on ‘Environmental Impact Assessment’ is a Europe-wide instrument, but it is given effect through the legal systems of individual member states. Implementation ‘on the ground’ is thus affected by the organisational arrangements and professional approaches in each country. This paper will examine how the EIA Directive has been ‘translated’ into English law, how it is implemented in practice in England, and how this has affected the professional practice of archaeology there.

The paper will also consider whether there is scope for future improvements of the Directive itself, or of the ways in which it is implemented.

It is hoped that this paper, focussing on one country, will stimulate discussion of how the Directive is being implemented across Europe, and of what improvements might be sought in the future.
TH2-06 Abstract 03
Environmental Impact Assessment and Heritage Impact Assessment: improving the relationship
Author - Dr. Young, Christopher, Christopher Young Heritage Consultancy, Bicester, United Kingdom (Presenting author)
Keywords: cooperation, Environmental Impact Assessment, Heritage Impact Assessment
Presentation Preference - Oral

In values-based approaches to heritage management, some form of assessment of significance of the heritage asset, and of the impact on that significance of any proposals for development or change is essential. If it is not understood why something is important, it is not possible to judge what will harm it or enhance it; and to take appropriate decisions to protect heritage or mitigate damage. Environmental Impact Assessment (EIA) is one methodology for doing this and one that is mandatory for some types of development within the EU. Its scope includes heritage alongside other environmental aspects and many other things. The extent to which this works for heritage in various parts of Europe is sometimes debated and there are concerns that inclusion of heritage within a wider assessment system does not do it any favours. It has been argued that, in the EIA system, the overall heritage significance of a place is disaggregated, for example into archaeology, protected buildings and landscape, and that impact on it is not assessed holistically. EIA is also applied very selectively and many smaller development proposals will not require formal evaluation.

Alongside EIA, therefore, the practice of Heritage Impact Assessment has developed with its own published guidance. It is now recommended for all developments affecting World Heritage properties and HIAs are frequently requested by the UNESCO World Heritage Committee. At the other end of the scale, national systems (for example in the English National Planning Policy Framework (NPPF) and Planning Practice Guidance (PPG)) often now ask for assessments of impact on heritage for many cases which will never require EIA. They can recommend use of existing HIA guidelines or request simpler heritage statements.

The de facto existence of two parallel systems which can apply to the same site can be counterproductive to good decision-taking as well as wasteful of resources. There is currently considerable research interest in Europe on the use and effectiveness of HIA. One clear avenue for research is the interaction between HIA and EIA and at how lessons from HIA might improve the effectiveness of EIA in assessing and giving due weight to impacts on the heritage. Any proposal to improve treatment of archaeology in EIA needs also to look more widely at developing a more holistic approach to heritage as a whole. Working with existing initiatives on HIA could be a fruitful way to proceed.

TH2-06 Abstract 04
Assessing the Impact: Spatial Planning, Cultural Heritage and EIA in England
Author - Victoria, Donnelly, University of Oxford, Oxford, United Kingdom (Presenting author)
Keywords: EIA, Environmental Impact Directive, Spatial Planning
Presentation Preference - Oral

Our understanding of English cultural heritage is significantly influenced by the Environmental Impact Directive and EIA requirements; for example, the undertaking of archaeological fieldwork and the spatial distribution of the resultant archaeological record is strongly determined by projects which are subject to EIA. This can be illustrated through the comparative examination of data held within Historic England’s Excavation Index, the Archaeological Investigations Project dataset and the Grey Literature Library held by the Archaeology Data Service in York.

Interestingly, EIA regulations also frame archaeological investigative work that is not undertaken under the direct influence of the Environmental Impact Directive, such as cultural heritage investigation and archaeological fieldwork undertaken within the context of a DCO application or a Hybrid Bill. Although these types of planning applications and regulations fall outside of the Environmental Impact Directive, they are heavily indebted to the process of EIA which shapes the resultant approach, project design and method.

Through a discussion of projects subject to the Environmental Impact Directive as well as projects undertaken within the context of a DCO application or Hybrid Bill, this paper intends to explore the influence of EIA requirements on spatial planning and cultural heritage in England and how they shape our understanding of the English archaeological record.

TH2-06 Abstract 05
Preventive archaeological excavations & motorway construction projects in Romania
Author - PhD Bors, Corina Ioana, National History Museum of Romania, Bucharest, Romania (Presenting author)
Keywords: archaeological heritage management, EIA, motorway construction projects
Presentation Preference - Oral

Since year 2000 the management of the archaeological heritage in Romania had to face a new and challenging reality: the large-scale rescue/preventive archaeological excavations occasioned by the construction of the motorway networks developed along the Pan-European corridors. The National History Museum of Romania was involved since the beginning in coordinating a series of major archaeological projects developed in such situations. The presentation will briefly address a series of key aspects related to the round table’s topic, namely an overview of the most important archaeological projects undertaken in connection with motorway construction projects, the operational framework for preventive archaeology in such cases according to the national legislation and the correlation with the EU regulations, as well as a series of necessary improvements still required for drafting and implementing a valid archaeological management strategy in order to mitigate the impact on the archaeological heritage in the context of road infrastructure projects.

TH2-06 Abstract 06
Paving the way for an Environmental Impact Assessment Working Party
Author - Dr. Hey, Gill, Oxford Archaeology, Oxford, United Kingdom (Presenting author)
Co-author(s) - Dr. Waugh, Karen, Vestigia BV, Archaeologie & Cultuurhistorie, Amersfoort, Netherlands
Presentation Preference - Oral

My contribution will summarise the discussions that have taken place during the round table and how these have moved us forward with our aims in setting up the EAA Working Party. In addition to the formally submitted papers for this round table, we have oral or written contributions promised on the link between the FARO Convention and EIAs from Adrian Olivier, and on the situation in Switzerland and Turkey. We also have participants from Ireland, Finland, the Netherlands, the UK and France. We will conclude by drawing up a programme for the next steps that the Working Party will take.
25 YEARS LATER: CHANGES AND CONJUNCTURES IN PREVENTIVE (DEVELOPMENT LED) ARCHAEOLOGY IN FORMER ‘EASTERN’ EUROPE

TH2-07 Abstract 01

Introduction. From rescue to preventive archaeology: 25 years of difficult journeys

Author - Prof. Novaković, Predrag, University of Ljubljana, Faculty of Arts, Ljubljana, Slovenia (Presenting author)
Co-author(s) - Horvat, Milan, VIA MAGNA Ltd., Vrščak, Slovakia

Keywords: Eastern Europe, preventive archaeology, rescue archaeology

Presentation Preference – Oral

Until 1990s and the abolishment of socialist/communist regimes in ‘eastern’ European countries, archaeological service (institutions and practice) in protection of cultural heritage was fully in the hands of state bodies which had to plan funds in their state budgets for performing their duties. These funds were normally coming from taxes, and then redistributed. The principle polluter-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 centralised 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. They were subject to constant change, for example situation in some countries was dominated by the academic institutions, especially the Czech Academy of Sciences (CAS), based on Soviet-type research organizations.

The situation in the Czech Republic is characterized by the beginning of the economic crisis in year 2008 boom in the number of new finds, and in 2008-2015 passes through the whole archaeology crisis, which is characterized by strengthening of the presence of the central institutions, especially the Czech Academy of Sciences (CAS), based on Soviet-type research organizations.

Development of the private sector in archaeology is limited by the presence of state-owned institutions and their burden is disproportionate control ambitions. Yet completely lacking standardization of legal framework for preventive archeology and in practice frequently updated customary legal principles. It is to try to interpret the present framework as a system of dual authorization, which represents one step permits the Ministry of Culture and a kind of second stage authorization with the CAS. It is part of the CAS effort to actively exercise control of the territorial jurisdiction of archaeological organizations and their burden is disproportionate control ambitions. Yet completely lacking standardization of archaeological activity and standard of archaeological research.

Maltese convention is in the Czech Republic interpreted by the authorities as a binding international treaty and by archaeologists as strict archaeology preservation. Typical is the small proportion of archaeologists on the...
preparation of building and development projects. In the structure of private sector in the Czech archaeology we find large and small companies, nonprofit organizations exclusively. The companies are purely archaeological and also joining other professional activities (for example environmental research, building history). Irreplaceable is a role of private entities in improving the quality of standards, especially in the case of development-led archaeological projects (final reports). Gray zone without a clearer anchoring represent service companies without expertise, which are working for public and government institutions.

After 25 years in the Czech Republic still completely the absence of the existing conditions for private sector activity in archaeology. Preventive archaeology in the Czech Republic so far been rather limited.

**TH2-07 Abstract 04**

**Archaeological Heritage in Lithuania after 1990s: Defining, Protecting, Interpreting**

**Author:** Dr. Poškienė, Justina, Vilnius University, Faculty of History, Vilnius, Lithuania (Presenting author)

**Keywords:** archaeological heritage, assessment, protection

**Presentation Preference:** Oral

Legislative decisions facilitated notable changes in the field of cultural and archaeological heritage protection in Lithuania after 1990s. National legislation was essentially modified twice: in 1995 and in 2005. Significant changes can be observed in the field of defining (accounting, assessment and listing), protecting (regulations on excavations' procedures or "protection through documentation"), preservation of archaeological remains in situ, as well as interpreting (by state bodies and public) of the archaeological heritage.

There are approx. 3000 archaeological heritage objects listed in the state Register of Cultural Property. The procedure of listing has been changed several times after 1990s. Since 2005, a heritage object is listed in the state Register of Cultural Property after an assessment council decides that a property is in the need of legal protection. The significance, the valuable properties of objects or sites of cultural heritage are assessed, and the boundaries of territories are defined by the immovable cultural heritage assessment councils as well. The specialized assessment council for archaeological heritage was established in 2012. State administrative and technical resources were concentrated mainly on preservation of new documentation type for already listed heritage objects, and thus led to a certain stagnation of inventorying of new archaeological objects. Nevertheless, data exchange between the state Register of Cultural Property and the Real Estate Register should be mentioned as an important achievement in many respects. 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 raising 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.

**TH2-07 Abstract 05**

**Implementation of the La Valletta convention:** the Croatian perspective

**Author:** PhD Sirovica, Filomena, Archaeological Museum In Zagreb, Zagreb, Croatia (Presenting author)

**Keywords:** Croatia, in-situ preservation, preventive archaeology

**Presentation Preference:** Oral

European Convention on the Protection of the Archaeological Heritage, released by the Council of Europe in 1992, had a significant influence on the practice of development-led archaeology in Croatia. Ratification of the Convention in 2004 and its implementation in legislation brought drastic changes by which archaeology became a part participant in planning of spatial and infrastructural development. But the changes did not include the full range of requirements needed for the successful practice of preventive archaeology.

Considering this problem it becomes observable that the attitude expressed in the Convention considers prevention as a 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.

**TH2-07 Abstract 06**

**Commission for archaeological research (CAR) in Slovenia**

**Author:** Brandik, Danijela, Zavod za varstvo kulturne dediščine Slovenije, Celje & Maribor, Slovenia

**Co-author(s):** Kajzer Cahtnik, Mihela, Zavod za varstvo kulturne dediščine Slovenije, Celje & Maribor, Slovenia

**Co-author(s):** Prof. Novokovč, Predrag, University of Ljubljana, Ljubljana, Slovenia (Presenting author)

**Presentation Preference:** Oral

The role and significance of the Commission for archaeological research (CAR) in the system of preventive archaeology in Slovenia (Daneja Bradinik & Mihela Kajzer Cahtnik, Institut for Protection of Cultural Heritage of Slovenia). CAR, though previously existed in different forms and structure, was re-established in 2009 as a counselling body of the Minister of Culture, who is according to the Cultural Heritage ACT (2008) responsible for issuing the legal permits for any physical intervention into objects designated as cultural heritage. To CAR (numbering 7 experts from conservation, museum and academic fields in archaeology), according to the Regulations on Archaeological research, all requests for reassesses (preventive, academic or other) are obligatory addressed and reviewed from a number of pointviews (reasons for research, competency of research team, correspondency with conservation plans and recommendations, other legal and financial aspects). After review, CAR issues recommendations to the Minister for signing the permits. Since its establishment in 2009, CAR is maintaining a data base of more than 1500 reviewed research projects proposals. This data base is excellent source for following the actual developments and trends, especially in preventive archaeology (more than 95% of proposals fall into this category) in Slovenia. These trends will be presented in the paper.

**TH2-07 Abstract 07**

**Perspectives of development-led archaeology in Serbia**

**Author:** Rajkovaca, Tonko, University of Cambridge, Cambridge, United Kingdom (Presenting author)

**Presentation Preference:** Oral

Depending on the political discourse, archaeological tradition, history and the perception of heritage, different countries adopted the La Valletta Convention in different ways. Especially remarkable was the introduction of development-led archaeology (DLA) in countries with former communist/socialist regimes. Serbia is a country with an archaeological history stemming from the 19th century; with conventionally good archaeological practice, and an exceptional regional academic tradition. The modern state of archaeology in Serbia is best presented in the paper.

However, despite having a reliable network of institutions and a strong academia, the modern day move towards the development-led archaeology demonstrated the range of problems which could arise from development-led excavations. It has proven that the transformation of archaeology from an academic discipline into an effective (public and/or commercial) in preventive strategies does not represent a small step. Deeply entrenched habits from Serbia’s rich and long archaeological tradition could not have been transformed at such a short time.

**TH2-07 Abstract 08**

**Preventive Archaeology at the Reserve Bench**

**Author:** Petrincić, Milos, Center for Conservation and Archaeology of Montenegro, Kotor, Montenegro (Presenting author)

**Keywords:** Cultural Heritage Protection, Montenegro, Preventive Archaeology

**Presentation Preference:** Oral

Montenegro, an independent state since 2006, and one of the smallest countries in Europe with 625,000 inhabitants, was able to develop archaeology as a discipline and its own heritage protection service rather late, after the WW2, in the context of former socialist Yugoslavia, when it also developed the necessary institutional infrastructure (museums, heritage protection institutes, but not university studies in archaeology or their heritage related disciplines).
Managing the archaeological heritage

Archaeology. In this new situation archaeological research became an object of a market game. Sometimes, a victim of this game of competition, in which price was, as a matter of fact, the only criterion of evaluation.

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 upswing of motorway construction and private industrial developers challenged this system and forced Hungarian archaeology to apply new approaches, develop or adopt new methodologies and management for preventive excavations.

It is not easy to say, where exactly Montenegrin archaeology is today. The old (‘Yugoslav’) concept in heritage protection remained in use until 2011 when Montenegro attempted for the first time to establish its own system and reform the institutional structure towards a more institutionally centralized and ‘rationalized’ organization. Unfortunately, this had a rather negative impact on the development of archaeology, especially its service in the field of preventive strategies, which were never properly reflected and attempted in archaeological circles since they were established ‘from above’. It is still common practice, that most of the large projects in spatial development (e.g. highway constructions) almost completely exclude preventive archaeology, while the situation regarding the booming tourist and construction industry in the coastal areas is even more difficult than it used to be 25 years ago.

Bosnia and Herzegovina: preventive archaeology still recovering

Author - Hadižhasanović, Jeseño, Faculty of Philosophy of University of Sarajevo, Sarajevo, Bosnia-Herzegovina (Presenting author)
Co-author(s) - Kaljanac, Adnan, Faculty of Philosophy of University of Sarajevo, Sarajevo, Bosnia-Herzegovina
Keywords: Bosnia and Herzegovina, recovery, preventive archaeology, heritage protection

Practice of Archaeological Heritage Management in the Motorway Constructing Programme in Poland

Author - Prof. Dr hab. Rospect, Seweryn, Instytut Archeologii Uniwersytetu Łódzkiego, Łódź, Poland (Presenting author)

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.

Motors and archaeology. What does it mean to be a contractual archaeologist in Romania?

Author - Dr. Simion, Mihaila, Romanian National History Museum, Bucharest, Romania (Presenting author)
Co-author(s) - Vasilescu, Florella, Vanderlay Arheo, Hunedoara, Romania

Keywords: Heritage Legislation, Preventive Archaeology, Romania Motorways

Presentation Preference - Oral

This paper aims to provide an overview of the current situation in Romania regarding infrastructure projects in front of constraints and obligations relating to heritage protection. In this moment, archaeological permits are also a source of frequent complaint among contractors in the road sector. The “in-principle agreement” granted by the Ministry of Culture consists of a simple statement that the issuer is not opposing the project, subject to all relevant archaeological research procedures being undertaken as per the legal provisions in force.

The challenges with preventive archaeological projects stem from three sources: lack of clarity in the legislation itself, capacity constraints among project promoters; and institutional incentives related to the financing of such work.

These premises and a number of other factors, have made that, in the last years, in Romania, Preventive Archaeological Research to be seen as an obstacle to the implementation of infrastructure projects and not as an extraordinary opportunity to research and capitalize of the heritage, as it would have been normal.

At the same time, these premises generated a series possible abuses or unprofessional approach from all the actors involved, with important consequences on the perception of the concept of archaeological heritage, some examples being the object of the present paper.

Towards a new Horizon: development-led large scale excavation policy in Hungary post 1990’s

Author - Csíka, Szabolcs, Hungarian National Museum, Budapest, Hungary (Presenting author)
Co-author(s) - Zagórska, Sylwia, Hungarian National Museum, Budapest, Hungary

Keywords: large-scale excavations, management, methodology

Presentation Preference - Oral

In our presentation we will give a brief review of the changing national concept of large-scale excavations in Hungary during the last 25 years. Heritage services have traditionally been organized on a partly decentralized structure, in which the 19 county museums and the Budapest Museum act independently within their territories. Other institutes, e.g., Hungarian National Museum, universities with archaeological department and the Archaeological Institute of the Hungarian Academy of Sciences, carried out centrally funded research projects excavations.

The upswing of motorway construction and private industrial developers challenged this system and forced Hungarian archaeology to apply new approaches, develop or adopt new methodologies and management for preventive excavations.

Although a uniform protocol for archaeological process was crystallized by the mid 2000s, the other relevant elements of largescale excavations’ management are still widely debated. We would like to concentrate on developments of the last half decade, during which period radical changes in legislation, in financial and in the institutional background have been taken by the Hungarian government. We attempt to summarize the experience of the consequences of these turbulent central acts and outline the present status and practice of preventive archaeology in Hungary.

Management of rescue archaeological research performance in Slovakia

Author - Dr. Homálik, Milan, VIA MAGNA s.r.o., Vrútky, Slovakia (Presenting author)

Keywords: management, preventive archaeology, Slovakia

Presentation Preference - Oral

Archaeological research has transformed during the last 25 years into a complex of legal regulations defining the course of field research. The current reality is that the biggest share of the field activity is not aimed at targeted scientific research, but at rescue archaeological researches. As a consequence, field archaeologists are becoming producers of findings which are, and in general, they have no time left to be what they studied to be - i.e. scientists. In case of positive archaeological research the subject of professional and non-professional discussions is the quality of performed research, treatment and processing of findings. It can be also assumed that rescue and advance archaeological researches will be on the wane in relation to transformation of building
activity. It is therefore necessary to prepare the archaeological community for the transformation of its activity towards targeted scientific and research activities.

Our paper will show how the Slovak professional community responded to this status.

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TH2-07 Abstract 14
The settlement of Krahes:
From a chance find to an archaeological protected site

Author - MA Poč, Enina, Archaeological Service Agency, Tirana, Albania
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Keywords: Preventive archaeology

Presentation Preference - Poster

The archaeological resource management as elsewhere in Europe after the review of the European Convention for the Protection of the Archaeological Heritage (1992), has drastically changed the whole system of the archaeological heritage management in Albania. The cultural heritage law of 2003 was amended further in 2006, 2008, 2009, 2013 and is currently under full revision.

The amendments of 2008 led to the creation of the ASA and National Council of Archaeology. ASA is assigned with a highly complex task that includes both the supervision of the archaeological projects and the undertaking of rescue excavations across the country.

ASA is also responsible for any chance find, that possibly appear during agricultural, construction or engineering projects around Albania. Their appearance sometimes may only represent the beginning of a long evaluation process to be finalized with the establishment of a new archaeological site that requires protection as the prerequisites of the law anticipate. During the last year, ASA has dealt with a particular case as it will be explained below. At other scenarios, the chance finds can be particularly rare and isolated and further exploration may not yield additional information.

Prior to the foundation of ASA, these tasks were undertaken by the Archaeological Institute of Tirana and in cooperation with the Albanian Rescue Archaeology Unit (a non-governmental organisation) and by the Rescue Archaeology Section (abolished with the establishment of ASA) affiliated with the Institute of Cultural Monuments. Since 2008, ASA have followed the procedure for 9 archaeological chance finds.

The village of Krahes is situated in the district of Tepeleina (Albania). Two graves were discovered occasionally during agricultural works by a farmer who informed the local authorities (Regional Division of National Culture, Gjirokastër). Before 2008, these tasks were undertaken by the Archaeological Institute of Tirana and in cooperation with the Albanian Rescue Archaeology Unit (a non-governmental organisation) and by the Rescue Archaeology Section (abolished with the establishment of ASA) affiliated with the Institute of Cultural Monuments. Since 2008, ASA have followed the procedure for 9 archaeological chance finds.

The archaeological excavation results. The preliminary study of the archaeological material and method of construction, dates both graves around cent. 3 – 2 B.C. During the excavation process the team (ASA and RDNC Gjirokastër) conducted a survey around the area measuring approximately 3.5 hectares. A high intensity of finds (tiles, bricks, pottery shreds and some rubble walls) was encountered on surface. Taking into serious consideration this potential, the ACA agreed to give to the area the special status of the protected zone. More precisely, its borders were established by another fieldwork campaign. This new status will indeed prevent possible damages by construction projects or agricultural works.

The archaeological survey covered an area of 7 hectares divided in 12 tracks. Within it, 6 hectares yielded high intensity of data and was given the status of the protected zone.

The archaeological material found during the survey consists of fragments of tiles, pitfors, transportcontainer, utensils and pottery coated with bitumen. The relative chronology based on the above material indicates three periods of occupation for Krahes: Hellenistic, Roman and Late Antiquity.

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TH2-07 Abstract 15
CONPRA (Contributing the Preventive Archaeology:
Innovativeness, Development and Presentation)

Author - Prof. Novaković, Predrag, University of Ljubljana, Faculty of Arts, Ljubljana, Slovenia (Presenting author)
Co-author(s) - Zachar, Jan, Via magna s.r.l., Vrutely, Slovakia
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Co-author(s) - Gu, Lukáš, TerraVerita s.r.o., Prague, Czech Republic

Keywords: development-led research, non-invasive archaeology, Preventive archaeology

Presentation Preference - Poster

Since 1990 major social, economic, conceptual, and technological changes greatly affected heritage sector in former ‘Eastern Europe’, and heritage labour market in particular. In this sector, previously fully dominated by public institutions, gradually emerged forms of private enterprises. SMEs and similar, which increasingly provided services needed for protection and management of heritage. Here, among heritage related discipline, it was archaeology which took the leading role in developing new forms of entrepreneurial practices. The major boost for this process and transformation of the roles came from intensive development which generated large quantities of development driven archaeological research in the framework of heritage protection and management. Non-invasive archaeology, in two recent decades, greatly benefitted from the development of ICT and other digital technologies. These technologies (combined with new concepts of preventive archaeology) had major impact on economy in archaeological heritage sector, providing a set of new and highly efficient tools for facing the scientific and business challenges. Moreover, not only that ICT and other digital technologies provided cost-efficient tools, they also boosted development of new kinds or archaeological research and manipulation with large data sets.

Four partners from Slovakia, Czech republic, Slovenia and Serbia (2 SMEs: VIA MAGNA s.r.o. TerraVerita, and 2 Departments of Archaeology from the universities of Ljubljana and Belgrade) joined in the project CONPRA (Industry-Academia Partnerships and Pathways; FP7-PEOPLE-2012-IAPP) with the principal aim of developing and disseminating recent concepts, methods and technologies adapted to the conditions of development driven archaeological research (3D scanning and computer 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 - Boussias-Khan, Dimitra, Metu/Odtu Yerlesim Arkeolojisi Anabilim Dalı, University College London, London, London, Unfpl Kingdom (Presenting author)
Co-author(s) - Prof. Erçihan, Deniz Bircan, Metu/Odtu Yerlesim Arkeolojisi Anabilim Dalı, Ankara, Turkey
Presentation Preference - Regular session

Which sites to manage and why managing them? • How to manage an archaeological site and what to manage? • Community involvement and public archaeology in Turkey. • Participatory management • Impact assessment of archaeological projects. • Rural development • Local/regional development.
In this session it is proposed to ask participants to consider the shortcomings in the management of archaeological sites by archaeologists involved in Turkish archaeology; we hope to argue for a greater need for structured organisation and involvement in the management process. The session envisages to place a special focus on archaeologists and site directors involved in field archaeology in Turkey; their involvement not only as stake holder on the management of archaeological site during the field seasons but also pre- and post-excavations and survey. The aim of this session would be to create awareness for the needs for site management for archaeologists in association with local authorities. It is also hoped that cross-fertilisation between archaeologists and heritage managers would lead to fruitful exchanges on the variety of processes and methods for managing archaeological sites. The session organisers hope to attract participation to the session from Turkish and international archaeologists and practitioners concretely involved in archaeological field work in Turkey. The ambition is to select the best papers to be published in a specially edited volume of CMSJ Journal (Conservation and Management of Archaeological Sites).

TH2-09 Abstract 01
Archeology for Management: New Cycle of Archaeological Research at Ani
Author - Assiat. Prof. Dr. Aktıne, Zeynep, İzmir Institute of Technology, İzmir, Turkey (Presenting author)
Co-author(s) - Bayram, Fahriye, Pamukkale University, Denizli, Turkey
Keywords: Ani, archaeological research, site management
Presentation Preference - Oral
Among numerous archaeological research projects in Anatolia since the nineteenth century by foreign institutions, the one at Ani is exceptional in having started under the auspices of the Russian Imperial Academy of Sciences when northeast Anatolia was under control of the Russian Empire in 1878-1918. Excavations by an international team resulted in careful documentation of numerous well-preserved churches that provide unqualified evidence of an "Ani school" of medieval Armenian architecture. While part of the excavated material has been preserved in the Museum of Antiquities of Ani and later in the History Museum of Armenia in Yerevan, several of the documented monuments were later devastated in wars, earthquakes and by vandalism.
After the establishment of the Republic of Turkey, sporadic excavations in the oldest-dating settlement layers and ramparts were followed by a new cycle of research under Turkish excavation directors, revealing the later Islamic layers of the city, while parallel efforts of foreign experts expanded knowledge on rock-cut architecture beneath Ani plateau and in the surrounding hills, ravines. Devot 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 nongovernmental organizations that provided expert and funding support. Urgency interventions have followed the recommendations of an advisory committee of experts from the Middle East Technical University (METU) of Ankara, established in 2006 by Turkey's Ministry of Culture and Tourism. The third cycle of archaeological research that has started in 2011 follows these priorities, in context excavations around the monuments subject to urgent measures, instead of an independent research programme.
The Ministry also initiated a site management plan for Ani, through a participatory process that was pioneering in Turkey when it first started by two capacity building workshops in 2009 and 2010. Priorities in the plan include visitor management and sustainable development of the Ocaklı village at the entrance to the site. This vision recently formalised 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 formally 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 ongoing 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 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)
Keywords: Elaiussa Sebaste, safeguarding, valorization
Presentation Preference - Oral
During the archaeological research that has been carried out on a continued basis since 1995 at Elaiussa Sebaste in the South Eastern coastal part of Turkey, extensive restoration activities were realised on all of the structures brought to light to assure the conservation and safeguarding of the site's archaeological heritage. These interventions have achieved in arresting the deterioration of the site and the impounding real estate speculation while allowing to open three monumental complexes to the public ( theater, agora and proto-byzantine palace) with the setting out of visitor's paths with view points offering more complete visibility, with panels located at the entrance of the archaeological area and inside, displaying plans, reconstructions and drawings that help understand the stratification of the complexes and the visible structures.
However safeguarding and valorization are necessarily linked to the creation of an Archaeological Park with different itineraries, to be realised in collaboration with the Local and Regional Administrations that will allow to enhance in a sustainable way the extraordinary cultural heritage of this area of Turkey. This project must impose the indispensable town planning and in order to protect the precious archaeological and physical landscape of Elaiussa from new building constructions in sensitive areas and from illegal dumping.
At present 4 different itineraries have been designed - on the basis also of interviews with visitors of various nationalities - of which the 1st concerns the necropolis, one of the most spectacular burial complexes in Turkey due to the good state of conservation, the monumentality and the richness of the funerary buildings.
The valorisation project of the Necropolis road between Elaiussa and the near ancient city of Korykos (modern Kizkalesi) was started during the 2015 campaign with bush clearing and careful cleaning carried out by the Mesin and Erdemli Bekleystyi. The results that have been obtained so far are very promising for the pursuing of the program to extend the visitor’s itineraries and sectorisation of this area. 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. Ballosi Restelli, Francesca, Sapienza University of Rome, Rome, Italy (Presenting author)
Co-author(s) - Frangipane, Marcello, Sapienza University of Rome, Rome, Italy
Co-author(s) - Tuna, Ayşin, İnönü Universities, 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 1987 and has yielded unprecedented data and finds concerning various periods of its history, 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
Managing the archaeological heritage

... and Kaman-Kalehöyük among others. Conservation through past and current foreign-run projects at several sites across the country including Aphrodisias, management of archaeological sites in Turkey by focusing on inter-disciplinarity, collaboration and participation in archaeological communities in conservation processes. This paper will discuss the changing approaches and practices in the conservation and some concentrate on building conservation and site presentation, others may go beyond and look for ways to engage local

Heritage List, have certainly had influence. All archaeological excavations increase their conservation measures, and their quest to have more sites inscribed on to the World authority or a funding body? Or perhaps a new national discourse? The Ministry of Culture and Tourism's recent requirements that 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

In 2001, following the ratification of the Malta Convention (1995), France adopted a legislative system, entailing 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 02
Who pays? The developer or the owner?
A fundamental and unforeseen change in Malta archaeology
Author: Vainoorkes, Jan, Ministry of culture, Chalons-en-Champagne, France (Presenting author)
Keywords: developer, financing, owner
Presentation Preference: Oral
Since 1990, most European countries have introduced the ‘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 rarer as the cost of land is less than the price of excavations. More generally, excavations tend to concentrate where the land cost is the highest.

TH2-10 Abstract 03
Excavating England: Development and developments in archaeological fieldwork since 1990
Author: Victoria Donnelly, University of Oxford, Oxford, United Kingdom (Presenting author)
Keywords: big data, development-led archaeology, modern fieldwork practice
Presentation Preference: Oral
Excavating England: Development and developments in archaeological fieldwork since 1990
Archaeological fieldwork in England has changed significantly since the introduction of Planning Policy Guidance (PPG) 16: Archaeology and Planning which introduced the principles of the Valetta Convention into the English planning system. There has been an explosion of data 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 behaviours of people in the distant past but also the more immediate and recent past: the nature of our data is clearly structured by modern archaeological practice. Our data shows that there are currently over 2400 unique archaeological organisations in England that have been involved in archaeological fieldwork since 1990. Although they range from commercial development-led companies, academic university departments to charity groups and volunteer organisations, the vast majority of these fieldwork investigations occur as part of the development and planning framework, within the context of a commercial system. The nature of proposed development, from aggregate extraction quarry sites, major road and rail infrastructure schemes and large scale housing development sites to smaller urban infilling and localised development schemes, clearly shapes both the design of the associated archaeological investigation and the resultant data. Archaeological fieldwork can range from massive landscape scale studies to constructed ‘keyhole’ investigation schemes and can be undertaken by large national companies or small ‘sole trader’ individuals. Examining how English archaeology has changed since 1990 and the advent of PPG 16 provides interesting insights into modern day archaeological practice and the relationship between legislation and the quality and quantity of archaeological data that has been produced.

This paper will explore how modern development has created and influenced development-led archaeology in England and how this influence has an underlying structuring effect upon the resultant English archaeological record.

TH2-10 Abstract 04
Archaeology and the Medieval Towns of Norway - before and after 1990
Author: Johansen, Line-Marie Bye, Norwegian Institute for Cultural Heritage Research (NIKU), Oslo, Norway (Presenting author)
Keywords: managing cultural heritage, Rescue archaeology, scientific research
Presentation Preference: Oral
The aim of this presentation is to discuss the changes in management of the medieval towns in Norway, and its impact on archaeological excavations and scientific research.

Norway has a strong legislation regarding archaeology and cultural heritage. The Cultural Heritage Act states that all remains older than the Reformation (1537) are automatically protected. The medieval towns, with their large areas of thick occupation deposits and building remains, are being regarded as a single monument. Norwegian Directorate for Cultural Heritage is the agent responsible for giving permission to remove archaeological remains. The costs involved in investigating automatically protected monuments or sites are paid by the initiator of the project.

Until 1990 the Norwegian Directorate for Cultural Heritage had permanent excavation offices established in the most important medieval towns. Norwegian Institute for Cultural Heritage Research (NIKU) was created in 1994 as a split from the Directorate. One aim was to separate the research from the legislation unit. NIKU is an independent non-profit institution dedicated to preservation and sustainable management of cultural heritage. NIKU are responsible for excavations in medieval towns, churches, monasteries and fortified sites in Norway. Since 1994, more than 1,000 archaeological investigations of various sizes since have been carried out.

Archaeological excavations normally take place in connection with infrastructural development such as house building, road construction, laying cables and pipes, and installing tanks.

I suggest that the changes in the management of the medieval towns has had an impact on both the way the rescue excavations has been carried out and the scientific research. Until 1990 the research was focused on the medieval objects and the development of the towns, with the remains of houses, property boundaries and roads. Since 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 fundamental 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. Staebuler, Harold, Heritage Office Saxony, Germany, Dresden, Germany (Presenting author)
Keywords: developer, financing, owner
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 or 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, v.v.i., Kutná Hora, Czech Republic
Co-author(s): Dr. Pardal, Institute of Archaeology of CAS, Prague, v.v.i., Prague, Czech Republic
Co-author(s): Dr. Kugel, Institute of Archaeology of CAS, Prague, v.v.i., Prague, Czech Republic (Presenting author)
Keywords: big data, development-led archaeology, modern fieldwork practice
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.

TH2-10 Abstract 07
Archaeological fieldwork in Germany
Author: Professor van Hoorn, Jan, Institute of Archaeology of BAS, Western Australia, Perth, Australia (Presenting author)
Keywords: big data, development-led archaeology, modern fieldwork practice
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.

TH2-10 Abstract 08
Changing concept of large-scale excavations in the Czech Republic
Author: Dr. Šumberov, Institute of Archaeology of CAS, Prague, v.v.i., Kutná Hora, Czech Republic
Co-author(s): Dr. Pardal, Institute of Archaeology of CAS, Prague, v.v.i., Prague, Czech Republic
Co-author(s): Dr. Kugel, Institute of Archaeology of CAS, Prague, v.v.i., Prague, Czech Republic (Presenting author)
Keywords: big data, development-led archaeology, modern fieldwork practice
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.
Rescue Archaeology in Russia: the radical shift of the 1990s, and its consequences

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

Keywords: change in legislation, rescue archaeology, Russia

Presentation Preference - Oral

In Russia, the beginning of the 1990s was a turning point in the history of the nation. 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 2002 Federal Law 73-FZ came into force: “Concerning sites of cultural heritage (historical and cultural monuments) of the peoples of the Russian Federation”. In 2011 Russia adopted the European Convention on the Preservation of Archaeological Heritage. In the 2000s, the situation changed rapidly, due to the fast pace of economic growth. These changes were clearly demonstrated by the pace of issue of permits for carrying out archaeological works. This inevitably raised questions about revising the methodology with which such rescue archaeology was conducted, and ways of optimising it. A system of regulation had evolved over many years, in which scientific regulation underpinned the methods employed when researching archaeological sites – identification on-site, and a method for presenting the scientific documentation which applied across the entire country. These norms apply to rescue archaeology too. There are no ‘short cuts’ available in these methods. Attempts to bring in systems of ‘observation’ as a subset of ‘rescue’ archaeology methods can be considered successful only in the cases of research into later, mixed-use developments. 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 artefacts. In 2013 a new Federal Law came into force, No 245 “Concerning amendments to Particular Legislative Measures of the Russian Federation which prevent illegal activity in the field of archaeology”.

Rescue Archaeology in Romania. Past and perspectives

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

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? Is it the reflection of the legislation or just to be just a pale reflection of it? Can this way of research be done in order to provide information for an academic archaeology?

To this kind of questions and to many others we intend to respond and to presents the state of link between the preventive/ rescue archaeology and the academic scientific research.
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 40,000 m². Archeological works were also carried out during the construction of the new roads, oil and gas pipelines. However, there are still prospects for further development - a collaboration with society and civil society organizations on the protection of the cultural heritage is necessary. It is crucial to realize the value of the archeological heritage as well as the importance of improving the scientific relevance of the preventive archeological works.

TH2-10 Abstract 11

“Amateur” archaeology, legal or not? The experience of a legislative practice in Russia

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Keywords: heritage, law, Russia
Presentation Preference - Oral

Boarding has been actively developed since 1990s in Russia and all over the world. It is connected with dramatic changes in social and economic life of the country and availability of metal locators. It took 20 years of a purposeful activity of the specialists in archaeological heritage conservation for a society to realize the value of the losses of the pillage of archaeological sites. In 2014 in Russia the federal act N315 was adopted, directed to the heritage rescue and consisted of the assets on criminal liability of “grave robbers” (up to 6 years). Apart from the asset of the encouragement of the persons doing the illegal excavations on the territory of archaeological sites, this law contains norms and regulations new to the Russian legislative practice: about the territory of an object of an archaeological heritage, about the state historical and cultural expert evaluation, about the mainstay/C/ization of the objects of an archaeological heritage, about the state national objects’ register and the encourage of the liability of the archeologists. The report is about the analysis of the practice in the application of the federal act N315 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)

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Co-author(s) - Grigorian, Svetlana B., Institute of Archaeology of RAS, Moscow, Russian Federation
Keywords: Late Middle Ages, Early Modern times, Moscow monasteries, new investigations
Presentation Preference - Oral

Archaeological investigations of the Zachatievsky Alekseevsky monastery (Dotschenka) that were started in 2003 laid the foundation of the new stage in the monasteries investigations which at the present time is recognized as one of the most important stages in the archaeology of the Late Middle Ages and Early Modern times in Russia. Until the last third of the 20th century monasteries of the Moscow period haven’t been investigated by the archeological methods, the understanding of its structural peculiarities as archaeological objects hasn’t been developed. Monasteries were regarded as too “late” objects. In the late 1970s, the architects-restorers have learned up with movement for the monuments protection. The first large excavations in the monasteries were held in 1980s. For two decades (mid 1970s – mid 1990s) three key monuments 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 radically. 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 are provided by the investigations in Zachatievsky Alekseevsky, Sretensky, Novospassky, Novodevichy and Donskoy monasteries in Moscow and in the Troitse-Sergiyeva 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.
in Oviedo. We could imagine herds of cattle grazing in the green landscape which is commonly associated with Asturias, but, nevertheless, there is no people in the image. Accordingly, most of the campaigns made since then by the regional institutions and tourism agencies have focused on the natural component of the Asturian landscape. Thus, bears are the main characters in advertising and TV spots, while local peasants or the long cultural biography of landscapes are kept silent. Only few outstanding monuments, such as Paleolitico art caves or some medieval churches, stand out among the forests in the mountains or the cliffs in the coast.

However, recent Landscape Archaeology studies and palaeoenvironmental research have shown the relevance of human activities in the formation of European landscapes, even in the most remote or liminal areas. At least since the Neolithic, the labor and the soil cultivated by peasant communities in taking advantage of the soil potentialities has determined the anthropogenic construction of the landscapes. In addition, the last debates in Social Sciences point out that society, political systems, individual and collective identities mediate all together in the cultural construction and the perception of the environment. Thus, it might be assumed that the energy invested by the local communities in working the land is the main agent in the modelling processes of landscapes in these mountains through the last 6000 years. At the same time, cultural narratives, the sociopolitical contexts, and their historical roots are central in the relations we (contemporary Europeans) establish nowadays with the rural landscapes. But, are these ideas sufficiently considered by state and regional-level governments in the management of European landscapes?

It seems clear that, rather, this ‘natural paradise’ is actually an artificial image in which the cultural aspects should have a more significant weight. The rural landscape is reshaped, while the experience and efforts made by local communities are muted. This way, peasant families become subaltern actors who barely can speak, since they are marginalized from the policy making processes. So, the aim of this paper is in the first place to evaluate the consequences of this sort of naturalistic narratives for the rural landscape. We could imagine herds of cattle grazing in the green landscape which is commonly associated with Asturias, but, in this second part of our paper, we will explore the questions related to peasant communities on the management and promotion of tourism and the Asturian cultural heritage. In fact, we could disseminate alternative narratives which may reinforce the local peasant positions as stakeholders for the future of rural landscapes.

Landscape Archaeology can provide more comprehensive narratives about cultural landscapes which would strengthen the role of Archaeology as a valuable Social Science for rethinking the future of rural European landscapes.

TH2-11 Abstract 03

Environmental archaeology in rural landscape and heritage management: experiences in Liguria (Italy)

Author - Pescini, Valentina, University of Genoa, San gimignano, Italy (Presenting author)

Keywords: environmental archaeology, environmental management, rural landscape

Presentation Preference - Oral

Since 1970’s re-naturalisation strategies are currently in use in Italy aiming at the preservation of current environmental conditions or even restoring an ahistorical and aprismatic ‘natural’ balance. These strategies are the results of rural landscape policies and environmental management that have adopted a ‘perspective approach’, and are exemplified in general policy documents such as those of the European Landscape Convention, within which no attention is paid to the ecology of specific places and sites.

The abandonment of local agro-silvo-pastoral practices, awarded by general and national choices of re-naturalisation of the rural landscape, is one of the main causes of the loss of biodiversity, increase in hydrogeological instability and risk of landslides. A redefinition of the actual factors that produced and shaped individual rural landscapes is required for a better understanding and a more sustainable management of this heritage. The historical study of environmental resources involves several strategies, environmental and historical ecology methods of investigation; such a historical approach to specific sites allows identifying, characterising and explaining the environmental resources and rural landscape features as the output of both historical and environmental processes.

This paper presents some research carried out in Liguria (NW Italy) that contributed to the study of land use and of the historical ecology of sites. The first case is related to the restoring of some rural buildings and terraced area located in the Cinque Terre National Park in order to recover past agricultural activities. The second case regards a multiproxy approach to identify evidences of past land use, rural architecture and vegetation coverage in North Liguria. The last experience deals with the historical characterization of a local landscape, comparing material features with a perceptive reading linked with the establishment of a literary park in Western Liguria.

All of these researches are a direct response to a question of ‘applied history’: the results of this work have been applied in environmental planning and in the historic characterization of the rural area, agro-silvo-pastoral landscapes and local products.

TH2-11 Abstract 04

Engaging stakeholders, shaping practice: Strategies for sustainable cultural landscape management

Author - Dr. Tully, Gamma, Durham University, Durham, United Kingdom (Presenting author)

Co-author(s) - Dr. Moore, Tom, Durham University, Durham, United Kingdom

Presentation Preference - Oral

Understanding and integrating stakeholders as the active creators and beneficiaries of cultural landscapes is an essential but under-developed element of sustainable heritage research. Through work focusing on some of the most significant monuments in European history (Late Iron Ageoppida c.200BC-AD60), this paper will explore how communities (including farmers, smallmedium enterprises (SMEs), wildlife organisations and researchers) understand, experience and shape cultural landscapes. The work will focus on the cultural landscapes of Doonbeg and Salmondsbury in the UK, which represent two of the case study sites involved in the co-funded European ‘Resilient 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), Biblioteca EPC (France) and Universidad Complutense de Madrid (Spain) alongside associate partners from outside archaeology (including wildlife management, farming, national parks and local government) from the three partner countries.

This project recognises that archaeological heritage is only one of many aspects of value – ecological, social, cultural and economic – within cultural landscapes and therefore needs to be part of an inclusive approach to developing landscape resilience. In order to develop better management strategies, the first stage of the project has been the analysis of current stakeholder perceptions of these cultural landscapes. This has been assessed through surveys, interviews and focus groups as well as initial engagement events. This paper examines how these cultural landscapes are used and understood. Using this analysis we explore how current knowledge can be increased whilst integrating existing landscape values into the management of cultural landscapes. As the project progresses, we look forward to seeing how such approaches can be used to develop engagement practices which will enhance cultural landscapes for greater mutual benefit to both landscapes and people.

TH2-11 Abstract 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 compounds to richest remains of village settlements which altogether constitute ancient rural landscape heritage in the country. Water irrigation and transport systems, agricultural terraces to control topography, rock-cut workshop edifices for olive-oil production or viticulture activities are some examples, which show adaptation skills of ancient cultures considering potentials/constraints of the environment they are located within. These ancient cultures have affected their followers over centuries by transmission of local knowledge systems to later generations. In addition to their heritage values, several traces of ancient rural heritage sites possess information values to establish sustainable development strategies for future.

However, several examples of such ancient rural landscapes are degraded by development impacts due to abandonment of traditional rural settings, changes in land-use patterns, topographical interventions due to infrastructural investments in modernization of agricultural activities and lack of adequate management systems in traditional rural areas. This paper aims to discuss enhancement of potentials and establishment of strategies to achieve ‘living archaeological sites’ approach by sustainable development of traditional communities living in these sites. For this purpose, a number of different cases from different parts of Turkey, in which the author has been involved during past few years, are presented. The results of multidisciplinary experiences are discussed in order to highlight potentials to link integrated management policies between rural archaeological heritage and traditional landscape policies under the theme of ‘living archaeological sites’ within the framework international doctrines and national legislations.

TH2-11 Abstract 06

Archaeology and landscape policies of rural areas. First results of a project in Southern Europe

Author - Dr. Stagno, Anna Maria, University of the Basque Country, Vitoria Gasteiz, Spain (Presenting author)

Co-author(s) - Nolte, Alessandro, University of Genoa, Genoa, Italy

Co-author(s) - Dr. Moore, Tom, Durham University, Durham, United Kingdom

Keywords: Cultural landscapes, Local Practices, Rural Archaeology & Historical Ecology

Presentation Preference - Oral

in the policy making processes. So, the aim of this paper is in the first place to evaluate the consequences of this sort of naturalistic narratives for the rural landscape. We could imagine herds of cattle grazing in the green landscape which is commonly associated with Asturias, but, in this second part of our paper, we will explore the questions related to peasant communities on the management and promotion of tourism and the Asturian cultural heritage. In fact, we could disseminate alternative narratives which may reinforce the local peasant positions as stakeholders for the future of rural landscapes.

Landscape Archaeology can provide more comprehensive narratives about cultural landscapes which would strengthen the role of Archaeology as a valuable Social Science for rethinking the future of rural European landscapes.
Across Europe rural areas are suffering, in term of loss of biodiversity, cultural landscapes and traditions, as the consequence of depopulation and increasing abandonment of their management. This problem is particularly evident in mountain areas, where the presence of common-lands and common access rights was crucial in shaping settlement patterns and rural landscapes, nowadays often protected as natural heritage.

This paper will consider, through presentation of the first results of a project focused on the archaeology of common-lands in Southern Europe, how archaeology could contribute to the creation of more synergies between research and management of mountain and rural areas.

The study is centered on the connection between social structures and related material evidences of local practices. The investigation pays specific attention to the practices of management and production of agro-forestry-pastoral resources. This approach has clearly shown, on one side, the historical dynamism of rural areas (and in particular of common-lands) for transformation of uses, organization and access rights and, on the other, the contribution of local knowledge to the construction and preservation of historical rural landscapes. The paper will reflect on how archaeology and historical ecology could help to connect historical reconstruction and present management of landscapes. This link could offer new approaches to better define landscape management policies, based on local actors and local management of environmental resources, in the framework of actions for the conservation of rural areas as a part of European Cultural Heritage.

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**TH2-11 Abstract 07**

Cultural landscapes and territorial management: the case study of Madrid

**Author:** Dr. Ruiz Del Arbol Moro, Maria, Institute of History, CSIC, Madrid, Spain  
**Co-author(s):** Baste Prais, Ines, Institute of History, CSIC, Madrid, Spain (Presenting author)  
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**Keywords:** Cultural Landscapes, Madrid, Tourism  
**Presentation Preference:** Oral

The Community of Madrid (this is the name of the administrative region of Madrid) is one of the main tourist regions in Spain, with over 10 million tourists each year. This region is considered as a space of cultural heritage. This cultural heritage, both of a rural and urban character, is protected by several legal and articulate into several typologies. As in other parts of Europe, this heritage constitutes an important factor for the quality of life of local people; and, at the same time, needs to be turned into an asset for regional development. Our proposal presumes the use of these spaces through the development of tourism as a way to promote the conservation of this heritage as a touristic asset 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 archaeological 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 and environment relationships during time. The protection of such “areas” or “landscapes” means a qualitative change in the conception of the character of the heritage and facilitates connections and links with the global process of territorial management (through links with environmental laws, or normative of environmental impact...). This is both a challenge for the public administrations and an opportunity to increase the benefits (social, economical, environmental) of archaeological heritage. Our proposal aims to explore these issues, and to analyze the opportunities that the archaeological past offers for sustainable economic development in rural areas. Our approach will focus in the tourism use of these heritage areas and its role in the context of the environmental and social politics of the region. On the background we aim to make a critical reflection on landscapes management policy and its convergence with promotion and valorization strategies.

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**TH2-11 Abstract 08**

Through Rural Living Landscapes to Ethnoarchaeological Reflections of Salt in Eastern Romania  

**Author:** PhD Student Asguldosei, Mihai, “Alexandru Ioan Cuza” University of Lasi, Lasi, Romania (Presenting author)  
**Keywords:** rural immaterial heritage, Salt-scapes, traditional practices  
**Presentation Preference:** Oral

Salt, due to its diverse properties, is found in all the dimensions of the human communities. This is proved over time by numerous archaeological findings. Greek and Latin authors of ancient works, medieval and modern documents, as well as current human behaviour determined by the abovementioned natural resource. The Eastern Romania, a region rich in salt, has a privileged position in European landscape and even worldwide, due to the high quality of all the saline occurrences. The most common are the salt springs, of a great value, first of all because they were known, appreciated and exploited since Neolithic times. These springs came to be used progressively in various aspects, from their role of condiment to the symbolic dimension of the product obtained by crystallisation of the liquid salt. A special situation is highlighted by the continuity of the traditional practices of exploitation of brine from salt springs in the rural world of Eastern Romania, still at a high level of intensity. However, because the area determined by the presence of salt and his community are threatened by a rapid globalisation and by a forced civilising, 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 della Brignola, an upland valley (>1800 m asl) in the Cuneo province (Italy). The local landscapes are characterised by the presence of pastoral structures: dry-stone pastoral cabins (gazé) and cells for cheese-maturing (saletté). Most of these gazé and saletté are still exploited by local herders. They were recorded via remote-sensing, fieldwork survey and historical maps. Archaeological excavations within the gazé of Stalla 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 gazé of Stalla Brignola, and the interest shown by policy-makers, members of local communities and tourists for this research, suggested that the results of the project could be used for protecting and managing this site and the pastoral landscapes within which it is embedded. This paper focuses mainly on the initiatives that have been undertaken to preserve these pastoral huts and to make them a point-of-interest in the touristic hiking tracks.

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**TH2-11 Abstract 10**

From the loss of a city, to the discover of Archaeological Heritage: the modern story of Palestina  

**Author:** Pintucci, Alessandro, University of Rome “LA Sapienza”, Roma, Italy (Presenting author)  
**Keywords:** Heritage, Italy, Protection  
**Presentation Preference:** Oral

Modern archaeological history of Palestina, city of ancient origin near Rome, started in the mid 1700s, when the first discoveries of tombs and archaeological materials were carried out in the territory; after a successful brackets linked to the promulgation in 1800 of one of the first laws of Italian protection, the Pacca’s Edict, in the second half of the 900 the city became a popular destination of Italian and foreign antique dealers, in particular French and Germans, who devoted to systematic excavations, almost never scientific, to recover the precious fabric of the Colombella necropolis. This pirate-logic excavations and recovery of materials went on until the middle of ’900, when, after World War II, the city, like the whole of Lazio Region, was the scene of an uncontrolled speculation that put a strain on so-called ‘original city’ and in the countryside: in the 1960s Palestina became famous in the newspapers as an example of poor land protection, culminating in the 1970s, with the opening of a painful legal case, which led to important arrests of staff of the Ministry of Culture too, turning the spotlight on the low, even zero, control that had threatened to destroy the heritage of the city and its territory. Since then a wiser management of the municipality, with a plan that has managed to create buffer zones in areas considered at archaeological risk, has allowed a more fine-grained control of the territory and the execution of archaeological excavations in areas hitherto little studied or known. Being the city that threatened to destroy his goods in the 1960s, with the last elections in 2013 the Municipality...
TH2-11 Abstract 11

The Landscape of Via Appia Antica: From a Panorama of Ruins to an Archaeological Park

Author: Dr. Habib Dubbini, Rachela, University of Rome 'Sapienza', Rome, Italy (Presenting author)
Co-author(s): Curcio, Mariateresa, University of Rome 'Sapienza', Rome, Italy

Keywords: Archaeological Park, Landscape of ruins, Via Appia Antica

Presentation Preference: Oral

The landscape of Via Appia Antica, characterized by ruins of imposing monuments immersed in the vast countryside, doubtlessly preserves some of the richest cultural heritage of the ancient world, whose fascination has been celebrated by artists and writers since the Renaissance. For centuries these archaeological ruins have played the role of generic memories, beautiful fragments creating romantic panoramas, findings decontextualized from their environment, waiting to be looked at, dreamed of, but uninterpreted, except by specialists. The lack of reception of their historical value by the community has led to the abandonment of archaeological sites; and, therefore, the past has been seen as an immovable, faraway, meta-historical, idealized, unattainable reality that can only desperately store or regret, or even (as has been the case so far) simply be ignored. For these reasons, although since Napoleonic times different plans have envisaged Via Appia as becoming a great archaeological park between the Roman Forum and the Alban Hills, this idea has been threatened by private interests, such as housing construction. Even after the creation of the Park in 1988, the aims of which are, however, at most naturalistic, 95% of the area has remained in the hands of private entities. Moreover, the traditional approach of Italian institutions to the cultural heritage, based on the concept of preservation, conservation, and protection, has increased the gap between archaeology, on the one hand, and communities, on the other, over the past decades.

In occasion of the decision taken by the Italian Ministry of Culture to finally transform this area into a national archaeological Park, many participants in critical reflections on this paper as keywords, policy and tools analysing the significance that archaeology could have for local communities in the creation of a shared identity based on a common landscape and focusing on the inescapably public use of archaeology, which as such must be defined, properly designed, and clearly explained to the community opportunities for building broader sustainability and legacy. In view of the future management of Via Appia Antica Park as an archaeological Park, inhabitants' current aspirations and needs in the negotiation of what they feel to be "their own" past and culture with institutions and policymakers have to be examined. This political perspective will be used to develop a critical reading of the state of archaeology in the Park, illustrating practical examples of "active protection" of its landscapes by the citizens and identifying, in the changing process of the appropriation of the past, some key elements for the recovery of a shared memory. Hence, a public approach to the management of the Park will be proposed that could promote cultural growth, including a proper debate between archaeology and communities, supporting territorial planning and envisaging new forms of development and democracy, all indispensable elements that can finally transform a landscape of ruins into a living landscape.

TH2-11 Abstract 12

The siege of 's-Hertogenbosch in 1629 Historic and archaeological research with the local community

Author: Flaminian, Jeroen, Vestigia Archaeologia & Cultuurhistorie, Amersfoort, Netherlands (Presenting author)

Keywords: archaeology and history, communities and volunteers, landscape management

Presentation Preference: Oral

The siege of the Dutch town of 's-Hertogenbosch in 1629 has been an important moment in the war between catholic Spain and the Dutch Republic and the 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, encamped for large military forces. The town was besieged for 5 months out of these fortifications before it was conquered. Noble visitors from all over Europe visited the siege to admire the novel and spectacular method. Because of this and its historical importance, the town itself was spared by the Dutch army and remains as it was at the time of the siege. Some excavations have been carried out, mainly to remove debris. Nevertheless, the town was besieged for 5 months out of these fortifications before it was conquered. Noble visitors from all over Europe visited the siege to admire the novel and spectacular method. Because of this and its historical importance, the town itself was spared by the Dutch army and remains as it was at the time of the siege.

The situation of the defence and of the town was measured and documented. The municipal archaeologists have marked the defence and frontline on the archaeological characterization maps. The local historic societies try to secure the possible remains in the landscape by study and field research.

In 's-Hertogenbosch the foundation 'De Groene Vesting' / 'The Green Stronghold' is established. It's a local initiative of inhabitants of s-Hertogenbosch and surrounding villages to visualize and experience the lines of Frederic Henry of 1629 around the town for a broad public. By opening up the many historical sources people are invited to research and discover them selves what was and is happening around the lines of 1629 in the past and nowadays.

On the eastside of s'Hertogenbosch a new canal has been realized between 2008 and 2015. Archaeological research has been executed to exchange the knowledge of the moment. The location of the lines was defined by new geological and modern map based on studies of historic maps. The seven excavations, varying between 200 and 20.000 square meters, gave new insight in the size, position and character of the lines. The archaeological results were integrated in the structural concept for the environment and the new archaeological characterization maps of the municipality and the province.

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 'sHertogenbosch 1629. Example are given how archaeological and historic research can contribute to the development of the landscape around the town, how a foundation of volunteers from the local community can start and support local environmental concepts and how these plans are accepted by the municipalities, local community and several entrepreneurs. And also how commitment for many years results in great plans and ideas for the future.

TH2-11 Abstract 13

Archaeology and Landscape Partnerships

Author: Dr. Murtagh, Paul, Northlight Heritage, Glasgow, United Kingdom (Presenting author)

Keywords: Heritage, Landscape, Sustainability

Presentation Preference: Oral

Archaeology forms a key component of many Landscape Partnerships schemes in the UK. These schemes, funded by the Heritage Lottery Fund, "put heritage conservation at the heart of rural and peri-urban regeneration" (Heritage Lottery Fund 2016) where local, regional and national organisations, often with conflicting areas of interest or priorities, work together to "make a real difference to landscapes and communities for the long term" (ibid). These HLF funded schemes are designed to make a "major contribution" (ibid) to the UK's implementation of the European Landscape Convention.

This paper will explore how these schemes contribute to the study, engagement, understanding, management, protection and enhancement of archaeology in the UK, what problems and tensions have arisen and how these obstacles have been addressed. The paper will further examine the sustainability and legacy of such models.


TH2-11 Abstract 14

The greening of Wroxeter: an alternative approach to displaying urban remains

Author: Dr. White, Roger, University of Birmingham, Shrewsbury, United Kingdom (Presenting author)

Keywords: Archaeological Park, Landscape management, Wroxeter

Presentation Preference: Oral

The buried city of Wroxeter at Wroxeter, in the English Midlands, is a challenging site to interpret and present to the public. Its principal focus is the ruins of the town baths, but this is just one visible building within an urban site covering 78ha. The remainder of the site has been down to uniform pasture since 1975 when it was purchased by the State to prevent further damage from ploughing. While the existence of the pasture has not prevented significant research - the major geophysical campaign of the Wroxeter Hinterland Project of the mid 1990s has resulted in the publication of the first full plan of the town, and a new interpretation of its chronological development - the monument is visually unapparent to the general public. This is reflected in the visitor figures for the site, run by English Heritage Trust, which are only in the tens of thousands. Yet immediately adjacent to the site is the National Trust property of Attingham Park (400,000 visitors per annum) while only 8 miles away is the World Heritage Site at Ironbridge (750,000 visitors per annum).

The purpose of this paper is to suggest a radical new approach to presenting the wider area of the town, around the baths at its centre, that will make the extent of the town visible in the landscape. It is suggested this can be achieved through a varied planting scheme that will not damage the underlying archaeology, creating at the same time a network of pathways that will encourage visitors from the surrounding Attingham Park. There would be three-fold benefits from the scheme. It would facilitate access and understanding it would provide a biodiversity landscape and the general monocular of the surrounding modern agricultural landscape and, lastly, would encourage a greater diversity of wildlife on the site. Such a planting scheme would not hamper any future archaeological work on the site, but would make the site more attractive to visit for the general public along permissive paths that did not interfere with the possible use of the site by wildlife.
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 indigenous landscapes for more advanced purposes: to contribute to a deeper understanding of the territory, in order to achieve development that respects the legacy of the past and its conservation. It is used a multidisciplinary approach (archaeology, geography, ethnography, soil science, agronomy), from a multi-scale (from local to European level) and with a diachronic perspective (from antiquity to the present day). In order to consider the various mechanisms of appropriation and transformation of the environment by the societies, the project focus on the analysis of various types of cultural landscapes of the Iberian Peninsula, especially selected by the morphology of their agrarian systems: one of the most homogeneous expressions of the interaction between man and territory: 1) mountain landscapes of Sierra de Segura (Albacete) and Sierra de Alcalá (Albacete), characterized by small height villages of Islamic origin with an agropastoral economy. The element that characterizes the agricultural systems of these communities is the terrace farming: plots created to take advantage of the mountain slope where are developed infrastructures for the exploitation and distribution of water resources (cultural landscapes generated from the Islamic period to the present day, still in use). 2) plain landscapes of Campo de Hellín (Albacete), the Valle del Vinalopó (Alacant) and Vega Baja del Segura (Alicante), characterized by exploited agricultural environments without interruption from antiquity to the present day, but with different strategies (Roman villas, early medieval rural villages and farmhouses, medieval fiefdoms, contemporary agrarian colonies). Our study focus on understanding how historical societies have occupied and administered this space, characterized by a shortage of water resources.

Landmarks and landscape in the South Eastern Sicily

Author - Dr. Sarabia, Julia, University of Alicante, Alicante, Spain (Presenting author)
Presentation Preference - Poster

South-Eastern Sicily provides a privileged view for the analysis of the impact on the culture of “Sikels”, thanks to its huge variety of indigenous settlements dated to the Iron Age and concentrated around the Ionian coasts, which were early visited and occupied by Greek colonies. Nonetheless, the archaeological debates and researches have been always concentrated in a Greek point of view, leading indigenous archaeology as a “niche archaeology”, where sites are even not well preserved and inserted in the archaeological potential resources.

For these reasons, I would like to focus on the analysis of the indigenous sites of the Hyblean Area. The portrait that has been revealing forces me to leave the well-known ethnic classifications and characterizations, getting close to the concept of “hybridity”. In fact, Greeks and indigenous people have developed an interactive dialogue that highlights the creation of a “third space” or “middle ground” that is not indigenous nor stranger, rather a cultural 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. Prehistorical sites in Sicily (e.g. Pantalica, Cassibile, Thapsos, Monte Finochito) are set on beautiful and breathable sceneries and the boundaries between archaeological landscape and natural-rural landscape are full of overlaps and possible links. This fact could suggest the idea of possible integrated landscapes where naturalistic tracks,农村 traditions and archaeological sites are linked together in unified managing plans for preservation and tourism.

It is still detectable the complete harmonisation of archaeology remains into the rural landscape and the landmar of rock-cut architecture, still used nowadays in agriculture, as a reference for the ancient deep relationship between humans and landscape and an ancestral proof of the respectful use of the land that the rural civilisation of the area has been promoting since its origins.
TH2-13

GIVING NEW MEANING TO CULTURAL HERITAGE: THE OLD AND THE YOUNG IN PAST SOCIETIES

Saturday, 3 September 2016, 09:00-13:00
Faculty of Philosophy, Room 107

Author - Lifehammer, Grete, University of Stavanger, Museum of Archaeology, Stavanger, Norway (Presenting author)
Co-author(s) - Murphy, Eileen, School of Geography, Archaeology and Palaeoecology, Queen’s University, Belfast, United Kingdom

Keywords: Children, Elderly, Society

Presentation Preference - Regular session

In archaeological studies of the past the humans were often viewed as being adults in the prime of life and 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 analogy demonstrates that ‘elders’ were often viewed with particular respect due to the perceived wisdom associated with their longevity. The inclusion of a wider spectrum of humanity within modern archaeological discourses has also resulted in an increase in studies of the human life course. Such studies stress the necessity of interconnecting the different stages of the life cycle to enable us to gain a better understanding of the life experiences of individuals at different times for the duration of their lives. In this session we wish to focus on adult and child relationships and, in particular, evidence for the interaction of the young with the old. In the modern world grandparents are often key figures in their grandchildren’s lives, but was this also the case in the past when people generally died at a much younger age than today? Is it possible to find evidence of such interactions in the funerary record, in the chain of osteopathy associated with different forms of material culture, in spatial analysis or in any other aspect of archaeological research? How is the evidence approached, integrated and presented in the professions of the field? We hope to bring the elderly out from the shadows while remembering that children in the past would have interacted with adults beyond their parents – just as they do in the present.

TH2-13 Abstract 01

Protect or perish: On the outlook for the young and the old in a museum’s collections

Author - Head of dep. Hoegestoel, Mari, University of Stavanger, Stavanger, Norway (Presenting author)
Co-author(s) - Denham, Sean Dexter, University of Stavanger, Stavanger, Norway
Co-author(s) - Lifehammer, Grete, University of Stavanger, Stavanger, Norway

Keywords: bio-archaeology, child/adult relations, ex situ preservation

Presentation Preference - Oral

High infant childhood mortality was a fact of life in the past. More children were born than would ever reach adulthood and old age, putting a limit on the potential for interaction between the young and the old. Modern society has seen a change in this. Improvements in health, labour and welfare conditions have increased life spans and altered somewhat how we use our time. This population shift has spurred the growth of a new stage in the human life cycle on a global scale, one in which older individuals have time and resources not previously available to them. This has changed the dynamic of the past, and increased the potential for interaction between the young and the old. It is possible to see such stage-interaction connections 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 andArchaeological interdisciplinary Research on life course, material 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 focuses 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 in situ skeletal remains (burnt and un-burnt bones) of children versus elders and the contextual evidence of archaeological grave, settlement and loose finds. Not surprisingly, the results indicate that burial rituals together with the frequency of highly acidic soils in the region, are an impediment to the bio-archaeological analyses of the human body and its treatment before and after death. As these conditions strongly influence the preservation of human bone, in particular the remains of inhumations, the possibility of gaining an understanding, both biological and social, of the interconnections of different stages in the human life cycle of the past are challenging.

TH2-13 Abstract 02

Mother-child relations in Early Bronze Age Lower Austria

Author - Mag. Dr. Rebay-Salibus, Katharina, Austrian Academy of Sciences, Vienna, Austria (Presenting author)
Co-author(s) - Appleby, Jo, University of Leicester, Leicester, United Kingdom

Keywords: Austria, Early Bronze Age, motherhood

Presentation Preference - Oral

The Early Bronze Age inhumation cemeteries of Lower Austria belong to three cultural groups (inguic, Unterwölbung and Wieselburg) with distinct burial practices. They differ in particular in terms of how bodies were placed and buried in relation to each other. In this contribution we scrutinize 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 to explore material markers of such transitions. Social responses to pregnancy, birth and early child rearing, as well as the link between women’s reproductive status and social status in Bronze Age central Europe, give insights into the conceptualisation of motherhood in the Early Bronze Age in general, but also into the variability within three closely connected, yet different groups.

TH2-13 Abstract 03

Grandparents in the Bronze Age?

Author - Dr. Appleby, Jo, University of Leicester, Leicester, United Kingdom (Presenting author)
Co-author(s) - Rebay-Salibus, 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 use a case study from the Early Bronze Age Treisental in Austria to show how prehistoric mortuary data might inform us about grandparenting in the Early Bronze Age. The existence of a series of large, well excavated cemeteries from this area makes it possible to investigate how the idea of the ‘grandparent’ might have been constituted both in life and death. In addition, we will investigate the extent to which grandchildren may have had a reciprocal role in caring for grandparents who became incapable either physically or mentally through diseases of old age.

TH2-13 Abstract 04

The white-haired and the feeding bottle: Exploring children-elderly interactions in LBA Aegean

Author - Dr. Gallou, Chrysanthi, The University of Nottingham, Nottingham, Uniled Kingdom (Presenting author)

Keywords: childhood, elderly, aging, Prehistoric, Aegean

Presentation Preference - Oral

Scholarship on age and gender in prehistoric Greek has taken an adult-centric approach (with focus mostly placed on young to middle-aged man 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 Rather than giving on up the human biological material, the situation requires a broader dialog about the application of analytical and interpretative models and/or techniques of an analogous or experimental nature in order to better explain and understand the archaeological evidence of human remains. An invitation is put forward for the establishment of a working group focussing on relationships between the young and the old in past societies.

TH2-13 Abstract 05

Skeletal remains (burnt and un-burnt bones) of children versus elders in the Early Bronze Age in Lower Austria: A focus on Vertebrae

Author - Lifehammer, Grete, University of Stavanger, Stavanger, Norway

Keywords: bio-archaeology, child/adult relations, ex situ preservation

Presentation Preference - Oral

The research program BEVARES (Biological Environmental and Archaeological interdisciplinary Research on life course, material 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 focuses on previously excavated material in the museum’s collections which has either not been analysed at all, or not been analysed using up-to-date techniques/standards. The paper presents our attempt to establish an overview of the ex-situ skeletal remains (burnt and un-burnt bones) of children versus elders and the contextual evidence of archaeological grave, settlement and loose finds. Not surprisingly, the results indicate that burial rituals together with the frequency of highly acidic soils in the region, are an impediment to the bio-archaeological analyses of the human body and its treatment before and after death. As these conditions strongly influence the preservation of human bone, in particular the remains of inhumations, the possibility of gaining an understanding, both biological and social, of the interconnections of different stages in the human life cycle of the past are challenging.

TH2-13 Abstract 06

Family and social practices in the Bronze Age: Children in the Early Bronze Age in Lower Austria

Author - Dr. Appleby, Jo, University of Leicester, Leicester, United Kingdom (Presenting author)

Keywords: Austria, Early Bronze Age

Presentation Preference - Oral

The Early Bronze Age inhumation cemeteries of Lower Austria belong to three cultural groups (inguic, Unterwölbung and Wieselburg) with distinct burial practices. They differ in particular in terms of how bodies were placed and buried in relation to each other. In this contribution we scrutinize 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 to 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.
their social roles, agency and interactions, and integrating them into a holistic analysis of the prehistoric world is vital for a better understanding of the workings of these early Aegaean cultures. Integrating ethnographic data with a systematic study of material culture, emerging 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 different age groups in the 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 alloparenting and multiple caregiving are introduced to give insight to the complex world of children and their peers in the ancient Greek oikos.

This research has been published in: Sommer, M. & Sommer, D. (2019). Care, Play and Socialization in Ancient Africa – A Developmental Childhood Archaeological Approach (DK: Aarhus University Press).

In Viking Scandinavian society, people were to a high extent defined and commodified 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 specific culturally and socially defined construction, contrasted to the normative adulthood, as displayed in textual and archaeological records. In medieval provincial law codes, a clear distinction between man slaughter (killing an equal, a free adult man) and killing children or elderly people, unable to defend themselves, is made. In case of the latter, the killer was charged with a significantly more severe penalty. The defenselessness of these household dependents is expressed in terms of limited capabilities, which, is argued, is a relevant definition also in academic discussion.

TH2-13 Abstract 06
Circle of Life? Aspects on youth and old age in Viking Age and Medieval Scandinavia
Author - PhD Mejishom, 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 commodified 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 specific culturally and socially defined construction, contrasted to the normative adulthood, as displayed in textual and archaeological records. In medieval provincial law codes, a clear distinction between man slaughter (killing an equal, a free adult man) and killing children or elderly people, unable to defend themselves, is made. In case of the latter, the killer was charged with a significantly more severe penalty. The defenselessness of these household dependents is expressed in terms of limited capabilities, which, is argued, is a relevant definition also in academic discussion.

In the burial records from Late Viking Age and Early Middle Age, graves of elderly, impaired, sick people and children in many cases differ from those of the productive adults. One specific phenomenon is approached in this paper, namely the use of amber bead amulets. Amber has been used as protective agent in Viking Age, i.e. as amulets attached to swords. A similar understanding of protective amulets is inferred for the use of amber amulets in the Viking Age. Presumably, amber amulets were used as protection for both sexes and all ages, essentially representing all the inhabitants of a household. An interesting feature of these cemeteries is the large number of infants and relatively large number of “older” individuals. The Icelandic sagas rarely mention children, and the old hand not to be in viewed in a favourable light. By looking at the osteological data in conjunction with spatial cemetry analysis a more detailed picture emerges providing information on the possibility of three generational families and the role and perception of the young and the aged within the medieval households. 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/ethnographic research pertaining to the museum’s collections and exhibitions, a new light may be thrown on historically “inconspicuous” social groups such as the aged and the young, irrespective of time periods.

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 burials in these cemeteries differ from the sparse burial records in other parts of the country. The cemeteries are all inclusive, i.e. include adults of both sexes and all ages, essentially representing all the inhabitants of a household. An interesting feature of these cemeteries is the large number of infants and relatively large number of “older” individuals. The Icelandic sagas barely mention children, and the elderly were not to be in viewed in a favourable light. By looking at the osteological data in conjunction with spatial cemetry analysis a more detailed picture emerges providing information on the possibility of three generational families and the role and perception of the young and the aged within the medieval household. This paper discusses how this unique material can add to the predominantly philological and historical discussion on the nature, makeup and social interactions of the medieval Icelandic household. It also touches on how the data may be used to create a fruitful discourse on how the “traditional” Icelandic household is presented and disseminated at a rural heritage museum. By comparing and contrasting the medieval bioarchaeological material and the historical/ethnographic research pertaining to the museum’s collections and exhibitions, a new light may be thrown on historically “inconspicuous” social groups such as the aged and the young, irrespective of time periods.

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**TH2-13 Abstract 10**

The search for the elderly: using osteological data to divide and join age identity

*Author* - Peschek, Sabine, Bradford, United Kingdom (Presenting author)
*Co-author(s)* - Maaranen, Nina, University of Bradford, Bradford, United Kingdom

Keywords: age identity, elderly, old age

Presentation Preference - Poster

Inquiries into age identity have only recently received attention, despite the recognition of gender identity in archaeology. Particularly elderly individuals are often ignored or treated with the assumption of a universal experience of old age. Traditional age estimation methods have failed to provide more accurate estimates to aid in the identification of aged skeletons. Individuals of 45+ years are often lumped together, ignoring any potential social differentiations in the later stages of the life course. In this study, the Transition Analysis has been utilized on the Iron Age cemetery collection of Wetwang Slack, East Yorkshire, UK, using the method’s statistical approach to provide more accurate age estimates for older individuals. Additionally, data on sex and age-progressive conditions including osteoarthritis, general spinal degeneration and dental health has been collected to investigate the social identity of elderly adults in comparison to younger adults. Using a sample of 150 individuals, the Transition Analysis provided a more dynamic age profile which shows that age differences are found across gender lines and in terms of disease likelihood. Elderly females have espoused 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 hampered by ill health which ultimately may have made their deaths and presence in this cemetery more likely. Death also is an important aspect of these women’s identity. Other forms of identity are highly important in gauging age differences and relationships between young and old. Age only becomes visible through the growing, gendered or diseased body as a medium in the social experience of age. The archaeological interpretation of osteological data shows that Wetwang Slack age groups have various relationships to one another depending on sex, health or even affected body location. This trend of age estimate, sex affiliation and disease status has proven useful in separating the elderly social identity from that of young adults in a way which provided especially elderly Wetwang Slack females with a kind of personality without ignoring their relationships to other age/gender 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 research in our society 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 whereas 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 data at death methods.

A known-age-at-death sample from the Finnish skeletal collection, held at the Finnish Museum of Natural History, was tested using Transition Analysis, the Buckberry-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 lay 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 belief. This study advocates the use of individual-specific age estimates, allowing for better differentiation of 45+ elderly 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.

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**TH2-14 Abstract 01**

Adopt-a-Monument - Making heritage relevant to everyday lives

*Author* - Richardson, Philip, Archaeology Scotland, Musselburgh, United Kingdom (Presenting author)
*Co-author(s)* - Jones, Cara, Archaeology Scotland, Musselburgh, United Kingdom

Keywords: Adopt-a-Monument, Diverse audiences, Social impact

Presentation Preference - Oral

Archaeology Scotland’s Adopt-a-Monument scheme (2011 – 2017) supports community heritage groups to take a lead in recording, conserving and promoting their local heritage. This current phase has a clear remit from the start to develop non-traditional heritage audiences, that is, those audiences who felt unconnected and unattached to their local heritage, sometimes through choice, sometimes through circumstances beyond their control. Adopt-a-Monument has sought to challenge these misconceptions by devising and providing accessible engagement opportunities which are relevant and immediate to everyday lives. We have worked with diverse audiences – from those who are transiently housed to those who have suffered from domestic abuse with very positive results. These projects are designed to put the people and participants first, and appear to have had a meaningful impact on the participants who have taken part. Yet projects such as this still produce meaningful archaeological results. This presentation will outline a series of case studies from this work and ask how we could expand this approach in the future.
greater community participation in caring for this resource the Heritage Council of Ireland has launched a pilot Adopt a Monument Scheme in 2015-16. The experience gained from this will be shared at the round table. At the time of writing this scheme, learning from work in Scotland, has progressed from an open public call for entries to selecting monuments and communities. Further details will be available in September.

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 archaeology fairs and informed thousands of people through this popular outreach activity. The overall aims of the archaeology fairs are to promote a greater public understanding of archaeology, raise awareness of local archaeological resources, and bring together proximate archaeological groups with a shared outreach goal. In this presentation, the authors will discuss how the AIA fair model was developed through feedback cycles that include evaluation, data analysis, reflection, and trial and error, how it evolved, and how it is spreading to other groups around the world. To date, 28 AIA local societies have hosted fairs and the popularity of this program as an outreach event is increasing among archaeology groups across the USA as well as in Belize, Canada, Colombia, the Czech Republic, Iran, and Myanmar. This growth in popularity and implementation presents us with unique opportunities to collect and reflect upon data essential to conducting archaeological outreach around the globe.

TH2-14 Abstract 04
The “archaeological path” in the interdisciplinary research in Polish Jurassic Highland
Author - MA Majerek, Magdalena, Nicolaus Copernicus University Torun Poland, Torun, Poland (Presenting author)
Co-author(s) - PhD Lawrowicz, Olgaert, 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. Interdisciplinary research in northern areas of the Polish Jurassic Highland, involves carrying out research in areas that can provide impetus to multifaceted cognition the history, cultural reality, social climate, local family memory, the heritage of generations, and contemporary identity the inhabitants of the northern part of the Polish Jurassic Highland, i.e. in the area of five communes: Janów, Leleń, Mstów, Przyrów. The project adopts an interdisciplinary perspective on the research of modern cultural anthropological, and refers to the new trend in archaeology focused on the study of modern times (XIX-XX centuries). Reflection these two disciplines is supplemented and verified through the knowledge of local history and the history of art. The project distinguished three complementary research path: anthropological, archaeological, historical/archival and a common path. Cultural anthropologists use the photographs, written materials, archives, documents and available publications. For them, the source of knowledge about the past and the present is orally primary historical, heard stories from encountered people. Within the queries historical researchers collect general information about the regional history, as well as about specific places and objects, often not adequately developed in the academic literature. In the discussed archaeological path aim is to attempt to answer the following question: whether in a particular place are material elements of culture capable to confirm, deny or modify the knowledge of the past emanating from collected stories. Archaeological diagnosis was divided into two stages: reconnaissance and non-invasive research (including aerial survey). In the first stage of the archaeological diagnosis, archaeologists investigate the available source base and makes an initial reconnaissances of the municipality. Then divide objects (places), which have been proposed for research by anthropologists, into three categories: A - objects studied non-invasive methods, which does not require detailed documentation; B - objects studied non-invasive methods, requiring accurate documentation; C - objects studied non-invasive methods, requiring accurate documentation, subjected to additional investigation using a metal detector, drill and survey trench. Established in the course of archaeological field research documentation (ie. the description card of places, photographs, drawings, movable monuments: artifacts and elofacts and their inventories, provides a database for a detailed analysis of the results of archaeological research at the level of a single place (object), as well as the analysis of a set of places in the municipality. The project is implemented under the National Programme for the Development of Humanities funded by the Ministry of Science and Higher Education in Poland.

TH2-14 Abstract 05
Role of archaeology in rise and fall of local tourist industry. A warning example from Finland
Author - Lautumaa, Vesa, The National Board of Antiquities, Helsinki, Finland (Presenting author)
Keywords: Local involvement, Media, Tourism
Presentation Preference - Oral
In June 1996 paleolithic stone tool was found in Susiluola cave in western Finland. As the first known paleolithic site in Scandinavia it received plenty of attention in national media. Soon after the first find was revealed and reported in media, the site was visited by thousands of people and local economics was boosted by the visitors. Tourism flourished. Hats, t-shirts, food, exhibitions, bars and restaurants were named after the site. Archaeologists, on the other hand, were not happy that their precious archaeological site harnessed for a tourist business and were criticising local efforts as pathetic. Local communities were planning to invest millions for the future attractions, like Ice Age Centrum and even an opera. In meanwhile there was a growing debate among archaeologists if the finds and the site was paleolithic or not, it was also acclaimed to be a hoax. Critics grew stronger also in the media. Debate cast a long shadow over the site and affected the public opinion. Attraction faded away and tourism collapsed. Last excavations season was in 2006. The debate concerning the authenticity of the finds and cave as a paleolithic is still unsolved. New discoveries in archaeology get usually attention from media and public. Growing interest can turn archaeological site to tourist attraction and raise local tourist businesses. In the best cases this will lead to fruitful co-operation between archaeologists, local officials, entrepreneurs and public. It is also possible, that overenthusiastic start can lead to very disappointing end for all parties involved.

TH2-14 Abstract 06
My Home Ground - past and present
Author - Hyöj Madsen, Lene, Museum skanderborg, Skanderborg, Denmark (Presenting author)
Co-author(s) - Dissing, Nina Bangsto, Municipality of Skanderborg, Skanderborg, Denmark
Co-author(s) - Purup, Marianne, Vist Skanderborg, Ry, Denmark
Keywords: Art, Ownership, Storytelling
Presentation Preference - Oral
Escape is a concept that adds energy and historical context to newly developed suburban sites. When an excavation site has been “emptied” for historical data by the archaeologists and the area has been developed for modern life, it is important to tell the unique story of the place to newcomers as well as the people who already live around the site. This can be done in many ways. Our experience is that bringing in Art into the process lifts the story-telling- and a work of art as well as the presence of an artist at Work - result in increased local communication and also make the site a point of interest for tourists. The concept eScape combines art, archaeology, past and present and creates and communicates art on sites with strong archaeological evidence and history and the history of art. The concept aims to attract and involve those who live around the site in the history, the discovery, the events and the process. The project is an example of local involvement and the result is a stronger local identity, more communication and increased local interest. Both artists and archaeologists have a role to play in bringing the site to life. This is especially important for suburban sites where the area has been “emptied” for historical data by the archaeologists and the area has been developed for modern life. When a site has been developed for modern use, it is important to tell the story of the place to newcomers as well as the people who already live around the site. This can be done in many ways. Art can be used to bring the site to life and make it 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 history and the history of art. The concept aims to attract and involve those who live around the site in the history, the discovery, the events and the process. The project is an example of local involvement and the result is a stronger local identity, more communication and increased local interest.
Pirkanmaa Municipal Museum has conducted excavations on a very unique Late Iron Age / Early Medieval dwelling place during the past years. The first discoveries were made by the local people, who have been familiar with the place for decades. The site has attracted an extraordinary amount of interest from various operators: a large museum centre and a small local museum seeking to enhance its activities; a university and independent researchers with personal interest in the site and its material; local authorities wishing to develop tourism. Pirkanmaa Municipal Museum has made research material and information freely available to all, and established contacts with many different operators and experts. With a little effort from everybody, the enthusiasm is clearly spreading. But how well do the different players cooperate? Will the outcome be a large-scale exhibition, a new tourist attraction, and a new multidisciplinary research project, as planned? The paper deals with archaeological excavation project as a societal concept, which creates working interfaces between different operators and sectors of society. The current and potential role of the museum as an enabler of new kinds of activities and projects will be discussed. It is noted that transparency, publicity, contacts, and efficiency are the most important basis for cooperation, and required in managing a research project with lower level of resources than normally.

But this is only a cosmetic touch up.

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 largely sold. The majority of illegal/licit 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.

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;
- discuss an official statement for the EAA concerning illicit trafficking of antiquities.

**TH2-16 Abstract 01**

**Acquisition policy- first line of defense**

**Author** - Domiter, Ozren, Archaeological museum in Zagreb, Zagreb, Croatia (Presenting author)

**Keywords:** consensus in collecting policies, labeling malicious collectors, raising social awareness

**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 notation 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 actions 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.
The systematic and inspiring raising of social awareness through the educational (equally pedagogy and andragogy) museum function about the flaws of decontextualized archaeological material and the inestimable (non-material) value of archaeological heritage is certainly the best long-term protection method because, frankly, lack of knowledge jeopardizes the 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-existence 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/recrued by the museums with public funds.

A policy on collecting written through a consensus in the archaeological profession could deter all potential malicious collectors, not leaving room for them to manipulate ‘family heritage’ and, on the other hand, should not discourage well-intended donors and legal possessors to give their finds over to museums. A high-quality and publicly available collection policy of archaeological museums, made in cooperation with legal experts, is a key step in preventing illicit behavior regarding archaeological heritage, and is a strong appeal to state legislature to redefine the legal framework for such activities.

I hope to share my experience and specific proposals for how to win this fight by participating at this round table.

TH2-16 Abstract 02
Illicit trafficking of archaeological heritage in Croatian post-war and transitional context

Author - Curator Đrnč, Ivan, Archaeological museum in Zagreb, Zagreb, Croatia (Presenting author)
Presentation Preference - Oral

The looting and illicit trafficking of archaeological heritage has a long tradition in Croatia, though most of these illegal activities have been concentrated in a few key centers. One of these black spots is the city of Sisak, which developed on the ruins of the Roman provincial center Scicilia and has provided seemingly inexhaustible archaeological material for all sorts of dealers and smugglers since the second half of the 19th century. The attitude of professional institutions, primarily museums, towards these activities varied between the 19th and 21st centuries: from tacit approval and cooperation by purchasing illegally collected items, to ignoring the issue, and finally limited loud advocacy for legal punishment. Unfortunately, throughout this period, these institutions mostly failed to encourage a wider public debate on the issue of destruction wrought by the illicit trafficking of archaeological heritage.

What makes the Croatian socio-political context unique among Central European and Mediterranean countries are the war and post-war periods of the 1990s and 2000s. The beginning of the ‘90s saw a wide range of problems concerning the preservation of archaeological resources, including the direct destruction of sites and museum institutions; the looting of archaeological material by the Yugoslav Army and Serbian paramilitary units, and the mining of large areas that, in the long-term, has made archaeological sites inaccessible for research. The post-war period brought even more problems. For example, there was no institutional cooperation, except in some individual cases, during the process of clearing thousands of square kilometers of land from mines with metal detectors. We can imagine that great numbers of objects have been found but only a small portion ended up in museum collections while the best pieces probably entered the illegal market. A 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; it has to be done through institutional order. As it is well-known, governments are the main responsible stakeholder of preserving cultural heritage - as they are representing the people and protecting their properties especially in times of conflict. Local people have been considered as one of the most important stakeholders of cultural heritage.

In the meanwhile, local populations are not able to preserve cultural heritage without theoretical overviews, practical information or even being informed about the value of their heritage. Hence, the necessity of creating a combination of benefits among the different stakeholders became an urgent necessity.

The ongoing armed conflict in Syria and Iraq has progressively damaged numerous of cultural heritage sites, especially in the cities of Aleppo – Syria and Mosul – Iraq. The escalated violence did not avoid the museums, immovable and movable sites and even intangible cultural heritage was either damaged or completely demolished.

In this paper, the author is going to present samples of cultural heritage destruction in Syria and Iraq. Also, he will present a plan to increase the awareness of local people – as one of the stakeholders - in a way that helps to protect cultural heritage under threat.

TH2-16 Abstract 04
Metal Detecting on Dutch WWII conflict sites

Author - MA Van der Schriek, Max, Vrije Universiteit Amsterdam, Amsterdam, Netherlands (Presenting author)
Keywords: Conflict Archaeology, Illegal excavations, Metal detecting, Illicit trafficking of Cultural Heritage
Presentation Preference - Oral

Dutch academic interest in the heritage of World War II (WWII) has been limited until recently. Attention for the subject is much greater in the wider community. Unfortunately, this interest is also expressed in many illegal searches and excavations. Metal detecting is a hobby that has been practiced by many archaeologists as an uncontrolled 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. With an uncontrolled methodology underpinning the use of the device, a metal detector can lead to the incorrect assessment of a site’s archaeological potential and even damage the site. Groups of metal detectorists and other enthusiastic amateurs have often tried to research conflict-related sites as responsibly and ethically as possible, but in previous decades the work has remained fragmented and was not always reliable. There is also a strong suspicion by professional archaeologists that films and television series such as Saving Private Ryan (1998) and Band of Brothers (2001), as well as significant anniversaries can intensify the problem.

Archaeologists and metal detectorists are working increasingly together. In some cases, metal detectors can give direction to an official archaeological excavation. Still, many metal detectorists are able to locate and identify WWII artefacts much more quickly and effectively than most Dutch archaeologists.

At the historic indifference of professional archaeologists, and the fact that little is done to protect this vulnerable heritage formally, Dutch legislation should be adjusted to permit properly framed conflict archaeological research. Conflict archaeologists play a vital role with regard to the preservation of these sites and relics. The ultimate question to be asked is this: are metal detectorists potentially an ally or an enemy of conflict archaeology? Is their activity always destructive, or can their interest and enthusiasm be harnessed to work with professional archaeologists, to the benefit of both sides?
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 adaptation schemes, it is necessary to first know exactly how the state is now, and what the conditions for in situ preservation are. Degradation of archaeological remains depends on environmental conditions. Which measures may be taken to mitigate the predicted climate changes and ensure continued in situ preservation of heritage sites? Should they be covered, or can changes in soil chemistry be stopped? Studies in Northern Norway are used to demonstrate impacts and possible mitigating actions.

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TH2-17 Abstract 03

Climate Change and its Impact on Cultural Heritage

Author: Dalen, Elin, Riksantikvaren/Directorate for Cultural Heritage, Oslo, Norway (Presenting author)

Co-author(s): Johansen, Kristine, Riksantikvaren/Directorate for Cultural Heritage, Oslo, Norway

Keywords: Climate change, hydroelectricity plants, Skjerka watercourse

Presentation Preference: Oral

Climate change and increased demand for energy that is produced from sustainable sources are two challenges for archaeological heritage in Norway. On one hand, archaeological sites are subject to changes in flooding and rain and for sites located in reservoirs, changes in reservoir regulation schedules affect them in ways we so far have little or no information about. At the same time Norway is to be the supplier of green power to the rest of Europe, “Europe’s green heart”. This means that wind power plants are to be built in many places, mostly along the coast affecting not only cultural heritage sites, but also the landscape of which they are an integrated part. New hydroelectricity plants are being constructed, and old reservoirs are being expanded, flooding new areas and new sites, and challenging the preservation of sites that are located in the reservoir. The Skjerka watercourse in the South of Norway is subject to all of this, and we foresee many challenges for the preservation of the cultural heritage in the area. This paper presents some of the strategies for collaboration being developed in cooperation with the Society for American Archaeology’s Committee for the Study of Climate, and the IHOPE Threats to Heritage and the Distributed Observing Networks of the Past program.

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TH2-17 Abstract 04

A Climate Change Impact and Risk Assessment for the Historic Environment Scotland Estate

Author: Dr. Davies, Mairi, Historic Environment Scotland, Edinburgh, United Kingdom (Presenting author)

Co-author(s): Tracey, Emily, British Geological Survey, Edinburgh, United Kingdom

Keywords: Adaptation, Climate Change, Conservation

Presentation Preference: Oral

As a large public body, Historic Environment Scotland (HES) has duties under Part 4 of the Climate Change (Scotland) Act 2009 that require it to contribute to climate change mitigation and adaptation, and to act sustainably. Ministers have identified HES as a ‘Major Player’ because it has a larger influence/impact on climate change than other public bodies. A Climate Change Action Plan for Historic Scotland 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 includes the following:

- quantifying heritage assets affected by climate change using GIS
- developing a methodology for assessing climate change risk to historic sites
- creating a risk register for the Properties in Care that are managed by HES (to assist with management planning and resource allocation).

In response, HES has undertaken a research project in partnership with the British Geological Survey (BGS) that sets out to identify the threats associated with climate change (such as slope instability and flooding) that have the potential to impact on the HES Estate. The results are assisting HES in preparing a risk register for the properties across the HES Estate and in shaping and prioritising on-going conservation and maintenance programmes. The research will also inform the development of a methodology for the broader historic environment.

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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): Hamby, Joanna, University of St Andrews, St Andrews, United Kingdom

Keywords: Coastal Archaeology, Erosion, Scotland

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 to first know exactly how the state is now, and what the conditions for in situ preservation are. Degradation of archaeological remains depends on environmental conditions. Which measures may be taken to mitigate the predicted climate changes and ensure continued in situ preservation of heritage sites? Should they be covered, or can changes in soil chemistry be stopped? Studies in Northern Norway are used to demonstrate impacts and possible mitigating actions.
Scotland’s vast coastline contains a wealth of archaeological sites, many buried under shifting sand dunes which has led to remarkable levels of preservation. Coastal erosion, accelerated by climate change, is impacting on thousands of these invaluable heritage assets. In recognition of the severity of the threat, the SCAPE Trust was established with a remit to research, conserve and promote the archaeology of Scotland’s coast.

Since the mid-1990s, Historic Scotland (now Historic Environment Scotland), has sponsored a series of Coastal Zone Assessment Surveys (CZAS) of the coastline in order to quantify the condition and threats to Scotland’s coastal archaeological resource. These surveys have targeted vulnerable areas and covered over 40% of the entire coastline. As well as assessing the geology, geomorphology and erosion risk of coastal cells, more than 11,500 heritage sites have been recorded. A prioritisation process taking account of a site’s value, vulnerability and condition this dataset and classified nearly 1,000 sites as requiring attention.

Following prioritisation, SCAPE initiated the Scottish Coastal Heritage at Risk Project (SCHARP), which worked with members of the local community to update and enhance this data, focusing on high-priority sites. The citizen science approach created a network of volunteers to monitor vulnerable sites in the dynamic coastal zone. As monitoring alone does not save threatened sites, SCAPE has also worked with community groups to undertake action at locally- valued sites. As preservation in situ is impractical or impossible in many coastal locations, the main aim is to rescue as much information as possible from these sites. A variety of strategies, from innovative digital recording and excavation to relocating and reconstructing sites have been deployed. The next project aim is to reference the updated data generated by SCHARP against the set of national research questions presented in the Scottish Archaeological Research Framework. This will ensure that research is undertaken at sites that will otherwise be destroyed, creating a ‘research / rescue’ framework. The potential of these vulnerable sites to answer research objectives will be shared with the international archaeological community.

A second aim is to map the updated data against the National Coastal Change Assessment. This project has plotted past change to the coastline and maps future susceptibility to erosion; and the result of the mapping exercise will inform future management of the coastal archaeological resource and highlight national and local priorities for further work.

This paper will present the impact of coastal processes on Scotland’s archaeological heritage, examine see methodologies employed to mitigate the threats sites face, consider the application of citizen science to the problem of coastal erosion and give case studies of some of the differing strategies used to preserve vulnerable coast sites by record.

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**TH2-17 Abstract 06**

**Identifying and Mitigating Climate Change Impacts on Heritage Assets in the Trent Catchment, UK**

**Author:** Dr. Knight, David, York Archaeological Trust, York, United Kingdom (Presenting author)

**Co-author(s):** Howard, Andy J., Landscape Research & Management, Bridgnorth, United Kingdom

**Keywords:** Climate change, Heritage assets, Landscape analysis

**Presentation Preference:** Oral

In the UK, the devastating summer and winter floods of the last few years have brought sharply into focus the changing nature of weather patterns, the challenges of future flood risk management under such extreme scenarios, and the need to develop robust strategies for the preservation of the cultural heritage resource. Inevitably, when such disasters occur, emphasis is often placed upon individual localities or groups of built assets and the development of solutions that consider both contemporary and modelled geomorphological processes. Whilst the impact of these major floods on heritage assets has gained some prominence in the media, much of the damage to the cultural heritage resource goes unrecognised as its impact on ‘invisible’ subsurface remains that may be recorded and monitored only by intrusive or remote sensing techniques.

Identification of the range of heritage assets within river catchments and of spatial and temporal variations in the archaeological and paleoenvironmental resource can assist study of past climatic and environmental changes, the environmental impacts of human activity and the responses of communities to geomorphological processes and events. Particularly in industrial landscapes, such work also has the potential to identify the legacy of past pollution and its impacts upon ecosystems and future geomorphic thresholds.

Whilst the historic environment record has the potential to inform environmental managers, it is important that the archaeological community adopts a holistic approach to examining landscapes, within clearly identified research frameworks that provide equal weight to individual sites and more expansive terrain units. This paper provides an example of such a framework, developed within the Trent catchment along the riverine corridor dominated by the historic mills of the Derwent Valley Mills UNESCO World Heritage Site and supported by Historic England and Derbyshire County Council. This has assisted in the development of toolkits to help characterise the georarchaeological resource, establish its potential for elucidating past landscape change and develop strategies for responding to future natural events.

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**TH2-17 Abstract 08**

**Sun, wind and rain: renewable and non-renewable resources in Wales**

**Author:** Bellford, Paul, Cwrt-Powys Archaeological Trust, Welshpool, United Kingdom (Presenting author)

**Keywords:** heritage management, renewable resources, Wales

**Presentation Preference:** Oral

This paper will look at two aspects of the effect of climate change on archaeology and cultural heritage in Wales. Firstly there is the need to reduce carbon emissions by increasing the use of renewable energy. However onshore wind and solar electricity generation has polarised public opinion, with many seeing them as a blight on the landscape. Although such installations may have an impact on archaeological and cultural heritage sites, the principal concern – both for heritage professionals and the public – is their impact on the wider landscape and the setting of heritage assets. In many ways the windfarm debate in twenty-first century Wales echoes nineteenth- and twentieth-century contestation over the loss of landscapes when reservoirs were created to supply water to English cities. Secondly, very significant damage to archaeological sites has taken place around the Welsh coastline in recent winters. Erosion has sometimes destroyed the historic environment, but it has also enabled new discoveries. The problem has been in providing resources to ensure that the archaeology is recorded preserved – and one very successful response has been the ‘Arfordir’ scheme run by the Welsh Archaeological Trusts training large numbers of volunteers to identify and record coastal heritage sites, and the changes that are happening to them. Discussion will focus on the role of archaeological curators, commercial contractors and public bodies in managing these cultural heritage challenges. What impact is climate change having on the cultural heritage, and how effective is the system in Wales at mitigating those impacts?

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**TH2-17 Abstract 09**

**Climate change and the effects on cultural heritage in the Netherlands**

**Author:** Kars, Eva, EARTH Integrated Archaeology B.V., Amersfoort, Netherlands (Presenting author)

**Co-author(s):** De Moor, Jos, EARTH Integrated Archaeology B.V., Amersfoort, Netherlands

**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

Managing the archaeological heritage (Iceman) to contemporary times (First World War structures and bodies). The sudden change in conditions has led to a genuine cultural emergency. The melting of ice is bringing to light evidence of the human presence at high altitudes from prehistory.

Global warming is changing the alpine landscape. The retreating of the glaciers is a climatic emergency, but is taking with it an entire cultural landscape. Both sea level and intensifying peak flows of rivers, require precautions to be taken in the Netherlands. Therefore, the national Flood control program foresaw a reinforcement of 700 km of levees within the present century. Part of the original long levee systems in the Netherlands contain historic dike remnants. In addition, long the rivers, the shells are being made “natural” again to let the water flow over land to prevent uncontrolled flooding.

These engineering projects give us possibilities to study not only the adaption of man to changing environmental conditions through time, but they also give us a possibility to create different strategies for cultural heritage to be preserved for the future, in relation to expected climate changes. In the presentation some examples will be presented.

TH2-17 Abstract 10
Sustainable energy versus sustainable heritage
in The Netherlands

Author - Kars, Eva, EARTH Integrated Archaeology B.V., Armerstoord, The Netherlands (Presenting author)
Co-author(s) - Van Rooijen, Cees, Cultural Heritage Agency of the Netherlands, Armerstoord, The Netherlands

Keywords: In situ preservation, spatial planning, sustainability

Presentation Preference - Oral

The Netherlands is not only a small country but also a country with large storage of archaeological remains dating from all periods. The old 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 infra structure and other expansion and the in situ preservation of the existing heritage. The consequence 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 subsitu spatial planning policy vision called STRONG. This emphasizes more and more the involvement of archaeology for the sustainable planning and vice versa.

In this presentation we will discuss how the exploration of green energy, both offshore and onshore, will challenge the care for archaeological heritage within the Netherlands. What areas are/will be explored? When analyzing the maps of exploration and the maps of the expectations of archaeology in these areas, will you see a conflict or synergy? What type of heritage is threatened and who are the threats in physical damage? And what is the scale of the threats?

But also are there possible advantages for the archaeological heritage? The combination of smart surveys and existing data could be beneficial for windfarming. The ambitions for onshore wind are high but the public opinion is low. Could the investigation of local archaeology have a positive effect on this public awareness for windfarming onshore? Are there major consequences for archaeology in the EU directives or are we only busy with meaningless directivity?

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 Retreat 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 (Iceman) 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 Lirne (3629 metres a.s.l.) in the Ortles Cedeale group, Trentino region, Italy is presented. Punta Lirne 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 Lirne, characterised by the presence of a two-cableway. 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 Aktopraklik, Turkey

Author - Curtis, Caitlin, University at Buffalo, Buffalo, United States of America (Presenting author)
Keywords: heritage, community, 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 Aypad, Bursa, Turkey, the local context of Neolithic-Chalcolithic Aktopraklik Höyük. With the initial aim of trying to understand sustainability and heritage within the terms of the community, newly gained information can now aid in forging a symbiotic relationship between archaeological sustainability, environmental sustainability, and community sustainability.

When discussing what was most valued locally, many noted that Ulaşbat 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, Ulaşbat Gölü was also the initial site of industrial development in town over 30 years ago, with the first factories to open starting 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 lake for attracting tourists, especially considering the existing tourist attraction of Gölyazı island just a few kilometers away at the center of the lake. Moreover, as Ulaşbat Lake is a valuable resource for local communities and is often used for recreation, it is essential that the lake supports additional measures for its maintenance, protection, and management, there are clear pathways here towards the parallel dialogue of archaeological heritage. Similarly, the archaeological site has been threatened by factory development and can be a valuable community and 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.
Managing the archaeological heritage

Oral
Trow, Steve, Historic England, Southampton, United Kingdom (Presenting author)

25 Years of Development-led Archaeology in England: evolution, since commercial competition was introduced in archaeology in 2003. excavations carried out through Cultural Resource Management have never been studied or published. It also has ethical and companies doing archaeological excavation. This view has had disastrous consequences in terms of research, since many

Managing the archaeological heritage

Oral
Guerramari, Maria-Pa, Istituto Beni Culturali - Regione Emilia Romagna, Bologna, Italy (presenting author)

Author


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.

20 Years of Development-led Archaeology in England: a review of large development plans, first thoughts matter!

Oral
Alien, Tim, Historic England, Northampton, United Kingdom (Presenting author)

Author

Keywords: early assessment, major development, research priorities

Identification and assessment aims at the earliest stage of large development plans, first thoughts matter!

Oral

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 authors 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.

PREVENTIVE ARCHAEOLOGY, SCIENTIFIC RESEARCH AND ECONOMIC DEVELOPMENT

Oral

Dinajouille, Jean-Paul, Université de Paris I Sorbonne, Arles, France (Presenting author)

Author

Keywords: heritage management in the 2010s

Author

In the 1980s through the domination of Milton Friedman’s free-market ideology and the Reagan and Thatcher governments. In a sense, 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-style-market ideology and the Reagan and Thatcher governments. In a sense, there is no real society any more, only a juxtaposition of consumers, buying or not buying goods and services in a market controlled by an “invisible hand”.

As we know, the State was rediscovered in 2008, when the western banks had to be rescued. Yet this ideology also partly affects the conception of Heritage. Developers are not economic agents threatening our shared archaeological heritage, who should pay for excavation to conserve it. They become “clients” who chose between different producers, in this case the private companies doing archaeological excavation. This view has had disastrous consequences in terms of research, since many excavations carried out through Cultural Resource Management have never been studied or published. It also has ethical and political consequences for our conception of our common past. France offers a good (or sad) example of such an historical evolution, since commercial competition was introduced in archaeology in 2003.

TH2-19 Abstract 03

Rescue and Preventive Archaeology in Europe: Public Service or Commercial Activity?

Oral

Belleau, Jean-Paul, Université de Paris I, Paris, France (Presenting author)

Author

Keywords: Commercial competition, Preventive archaeology, scientific research

Presentation Preference - Oral

While the term heritage normally refers to the transmission of property within a family, the term Cultural or Archaeological heritage refers to a national or ethnic community. Although national identities in the modern sense of the term only appeared in the early 19th century, there have for some time been two different conceptions of the State in the western world. In countries based on Roman law such as France, the State, even if it is disliked, is central to the conception of society. In “common law” Anglosphere countries, and especially the USA, the State has never been completely legitimate. This view was further reinforced in the nineteenth-eighties through the domination of Milton-Friedman-style-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”.

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TH2-19 Abstract 02

25 Years of Development-led Archaeology in England: Strengths, Weaknesses, Opportunities and Threats

Oral

Trow, Steve, Historic England, Southampton, United Kingdom (Presenting author)

Author

Keywords: Archaeology, Developer-led, Planning

Presentation Preference - Oral


While the issuing of a piece of technical planning guidance may seem like limited cause for celebration, it did in fact mark a new era in the archaeology of the UK and far beyond. Beforehand “rescue archaeology” was funded by the UK’s central government: thereafter it became the responsibility of developers. It is estimated that, in the intervening period, some 75,000 archaeological investigations have been supported by this system, recording many thousands of archaeological sites that would otherwise have been destroyed by development, without record.

The quarter-century anniversary of this change provides an opportune moment to reflect on the changes that have been wrought in the intervening period. In terms of resources directed to the study of archaeology, the revolution in understanding that 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 01

Author

TH2-19 Abstract 04

Keywords: development led archaeology, Heritage management, Scandinavian models

Presentation Preference - Oral

Trends in Scandinavian cultural heritage management in the 2010s

Oral

Bekken, Pål, Gjøvik, University of Oslo, Oslo, Norway (Presenting author)

Author

Keywords: development-led archaeology

Presentation Preference - Oral

How can archaeological curators and contractors integrate research into large scale development projects and avoid slipping into mechanical processes which simply translate and transform remains to archive? We know what we should do but require an understanding of practice and an articulation of the narrative in which our jobs are situated. Without being able to tell to ourselves the story of our role in the archaeological research process we can neither defend our position nor critically assess our success.

Where across complex landscapes with patchy existing information should archaeologists deploy their time and other people’s money and attention? This paper discusses the application of professional judgement and expertise to the identification of key research issues both within and outwith areas of proposed development, at the earliest stages of professional engagement. It draws upon case studies from the English East Midlands (UK). This initial view of a project should not pre-speak an evidence based and iterative approach but is crucial to support a robust Environmental Impact Assessment (EIA) which avoids a reductive and generic approach. Best advice given at the EIA Scoping stage is the foundation of a reasonable and evidenced based approach based upon research. This supports both the public interest in understanding of our past and in allowing the design process to minimise harm. Archaeological assessment and mitigation requires a research based approach from day one, for better or worse we never have as little information or as much potential influence as we do at that point first.
Since the 1990s the Scandinavian countries have in various ways tried to adjust cultural heritage management and development-led archaeology according to the national political thinking on the one hand and Pan-European legislation on the other. Sweden is probably the bestknown in Scandinavia where the most radical, modernist reforms have been implemented. The success of these changes has however been questioned. Still, far-reaching changes are nevertheless introduced. Local, Scandinavian solutions are challenged by organisational models from the larger European countries and by EU legislation. This paper addresses some of these tendencies and trends and tries to analyse the present situation of Scandinavian archaeology. Theoretical trends undermining the importance of humans may enhance or describe the power of EU directives as an inevitable destiny of Scandinavian archaeology. This thus makes the fact that archaeological engagement with politics on a national level is of major importance for the future of European Archaeology.

TH2-19 Abstract 05
Development in preventive archaeology in Slovenia: a view from the field
Author: MA Novak, Matjaž, Arhe d.o.o., Ljubljana, Slovenia (Presenting author)
Keywords: preventive, Slovenia
Presentation Preference - Oral

Slovenia has rather long tradition of archaeological heritage protection, dating from the early 1850 when the Imperial/Royal Central Commission for the Research and Protection of Artistic and Historic Monuments was established in Vienna (at that time Slovene provinces belonged to the Austrian Empire). Since then, Slovenia has passed through great political changes to become independent country in 1991 with the end of former Yugoslavia. More than 150 years of legislation in heritage protection is an important factor also when considering the development of preventive archaeology today. General institutional framework and doctrine of protection was for decades tied to the Austrian tradition (even after 1918), and Slovenia kept probably the best organized and efficient heritage service in former Yugoslavia with well developed regional network of heritage protection institutions. Legal transformation of old “Yugoslav” system started early in the 1990s, but it was not these changes which are directly associated with the introduction of preventive (rather than rescue) archaeology. In fact, it was great pressure posed by national program of motorways construction in the early 1990s, which considerably challenged the existing (traditional) system of protection, and required answers in terms of preventive strategies. It is in this context in which also the Malta Convention became rather a “new law” in preventive archaeology. Here, it is possible to see two major and parallel trends in changing the system of protection: a) positioning archaeology (and its preventive role) in obligatory procedures in spatial planning and b) emergence of private market of archaeological services. For the period 1994-2008 one could speak of a hybrid system of organization of archaeological preventive works with public (regional) heritage institutes officially directing large scale excavations and surveys (on motorway sites mostly), but hiring private SME for the actual job in the field. Existing public institutions simply could not meet the requirements for fast and efficient archaeological preventive research. In 2008, situation changed again, when new Cultural Heritage Act (which introduced the term preventive research) limited the issuers of protection conditions and recommendations (i.e. heritage institutes) to monitoring archaeological field research. The actual research was undertaken by SMEs or by public instructions which have a right to compete in the market (e.g. museums, academic institutions).

There is also another important issue associated with this act. Prior to 2008, it was the heritage institutes which negotiated the extent and also finances of the research, and have legal powers to force the developers to accept certain measures), while, afterwards, there were possible direct negotiations between developers and preventive researcher. Such liberalization of negotiations had in many cases negative consequences, especially in the context of recent economic crisis, which in Slovenia affected the most the investments in spatial development and construction, and consequently, also all ‘players’ in preventive archaeology.

TH2-19 Abstract 06
In search of a common space: (sharing) the spatial data of preventive archaeology
Author: Nurra, Federico, Sassari, Italy (Presenting author)
Co-authors: Montau, Anne, INRAP, Paris, France
Keywords: GIS, Preventive archaeology, Webmapping
Presentation Preference - Oral

According to the Article 7 of the “European Convention on the Protection of the Archaeological Heritage”, the parties have to “make or bring up to date surveys, inventories and maps of archaeological sites” and “to take all practical measures to ensure the drafting, following archaeological operations, of a publishable scientific summary record before the necessary comprehensive publication of specialised studies”. Furthermore, the Article 8 of the same “Convention” commits the parties “to facilitate the national and international exchange of elements of the archaeological heritage for professional scientific purposes” and “to promote the pooling of information on archaeological research and excavations in progress”.

25 years after the “Malta Convention”, we need to come back to this text and make a debrife 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?

In the case underlyer is that of the harmonization and the sharing of archaeological data. In that perspective, thinking the harmonization of the spatial data appears to be one of the answers. Archaeology is, above all, a spatial science and it seems thinkable to find a general agreement on the way of representing the spatial data. The issue of production, harmonization and management of archaeological data has become by now central, in relation to the huge diffusion of GIS and Web Mapping.

Basing on this premise and on two practical experiences developed in very different contexts, this paper aims to give a contribution toward the definition of a minimal spatial and archaeological value, useful to the production of archaeological cartography on a European scale.

TH2-19 Abstract 09
Preventive archaeology in current Slovakia
Author: Dr. Michalik, Tomas, Cultural Heritage Consulting Ltd./ Slovak Association of Archaeologists, Trencin, Slovakia (Presenting author)
Keywords: archaeological heritage, preventive archaeology, Slovakia
Presentation Preference - Oral

Cultural heritage and its protection is regulated in the number of laws in Slovakia. Basic mentions in the Constitution refer to individual laws, regulating cultural monuments, historic sites, archaeological heritage, museums, galleries, libraries, archives, artistic works or intangible heritage.

From the point of view of archaeology, archaeological heritage, its protection and management, the Act on Protection of Monuments and Historic Sites Nr. 49/2002 Coll. is the most important law, fully regulating the preventive archaeology as a whole. Administrative competences are applied by the Slovak Republic and its 8 regional branches. They monitor and supervise all activities with potential impact on the archaeological heritage, then they decide on necessity of conducting of research, its conditions and time frame as well as on offences. Their legal position in the Act is very strong, but their personal capacities (usually there are 2 or 3 archaeologists for one region) are low.

Since the last important amendment of the Act in 2014, there is express provision defining and regulating the preventive research. Previously there was no definition preventive nature of the research, although this kind of research was often assessed as one of the conditions of the research, especially for long-term and spatially large projects.

Preventive archaeology is conducted by licensed organizations in Slovakia; the licence is granted by the Ministry of Culture of the Slovak Republic, taking into consideration opinion of Licence Commission, its advisory body. Currently (February 2016) there are 38 licensed organizations, representing museums, private companies (14), universities (4), civil association (1), town organization (1) and state (2, but important actors – Archaeological Institute of Slovak Academy of Sciences and Monuments Board of the Slovak Republic) in Slovakia. Although museums is the most numerous group, they focus especially on local, less difficult projects. Majority of excavations is conducted by the private sector, what is interesting fact as the first licence for private company was granted only in 2007. Independently on the quantity or quality of archaeological finds, they must be stored in the museum after the finish of the research and elaborating of documentation.

The economic crisis caused substantial consequences in the preventive archaeology sector, but the impact on the practice was probably not so hard than in other countries with different legal situation and research tradition.

TH2-19 Abstract 10
The case of the history of Swiss motorway archaeology
Author: Jobin, Paul, Institut d’archéologie, Les Bois, Switzerland (Presenting author)
Keywords: History, Preventive Archaeology, Switzerland
Presentation Preference - Oral

The current economic crisis affects preventive archaeology because of the decrease of investments in the civil engineering sector and the public austerity measures. In other cases the functioning of preventive archaeology is simply prejudiced by new public
管理措施。这些破坏性的影响也会影响那些因经济衰退而受影响的国家。因此，我们应询问这样的问题：我们要保护或保存的预防性考古学是否真的需要保护？我们应实现什么样的目标？

**TH2-19 Abstract 09**

The Archaeologies of different times and contexts, as seen from the east part of Western Europe

**Author** - Dr. Staalzube, Harald, Heritage Office Saxony, Germany, Dresden, Germany (Presenting author)

**Keywords:** after 1990, East Germany, large scale projects

**Presentation Preference:** Oral

After 1945 many new large infrastructural works were necessary in all parts of Europe but only very few development-led large scale projects were accompanied by appropriate rescue excavations. The major political changes around 1990 had a similar impact on economy resulting in a huge amount of new construction activities, first mainly in the east part of Europe. But from the point of view of the archeological management of large scale invasive developmental projects the economic conditions as well as the societal acceptance after the 1990s differed in comparison with post-war Europe. This may partly be an effect of the Valetta Convention from 1992, which was itself a result of many years of convincing work, but it also coincides with the socio-political and economic changes in East Europe, which surely helped the signature and the later ratification of it. Anyhow the early 1990s represent a radical change in preventive archaeology and the management of large developmental scale projects in all Europe. As Germany has more heritage laws than countries it is impossible to speak for all. Some aspects activities and problems of development-led large scale archaeological projects will be presented thus from the point of view of Saxony, a former part of East-Germany.

**TH2-19 Abstract 10**

Enabling Archaeological Research within a Heritage Management Context: A View from the United States

**Author** - Dr. Heilen, Michael, Statistical Research, Inc., Haymarket, United States of America (Presenting author)

**Co-author(s)** - Coakes-Torrello, 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 historic resources that may be affected by an undertaking involving the federal government. The implementation of this Act has been in progress for 60 years. Another particular characteristic of preventive archaeology in Switzerland is its early development under the impulse of a long-term motorway construction programme that has been in progress for 60 years. The Valetta Convention from 1992, which was itself a result of many years of convincing work, but it also coincides with the socio-political and economic changes in East Europe, which surely helped the signature and the later ratification of it. Anyhow the early 1990s represent a radical change in preventive archaeology and the management of large developmental scale projects in all Europe.

**TH2-19 Abstract 11**

The system of organisation of Czech archaeology

**Author** - Markíz, Jan, Institute of Archaeology of the CAS, Prague, v. v. i., Prague, Czech Republic (Presenting author)

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**Keywords:** Czech Republic, Legislation, Preventive Archaeology

**Presentation Preference:** Oral

The Czech Republic entered into force 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 resources.

**TH2-19 Abstract 12**

Rethinking Preventive Archaeology: classification of the land as a starting point

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**Keywords:** Interpretation, Land planning, Mediation

**Presentation Preference:** Oral

Around 30 years ago we started researching the topic of archaeological heritage management in Spain and the necessity to adopt preventive measures concerning archaeological studies in the context of civil works. We used the adjective “preventive” for the archaeological field work. In this context, we developed a specific model (published in 2007). But, we have observed the proliferation of uses/abuses of the “preventive archeology” (PA) term as a synonym for salvage archaeological, rescue archaeological, emergency archaeological, as a result of preventive measures, etc. We argue once again here, the idea of Preventive Archaeology as a planned strategy. Land classification (in an urban sense), including its archaeological potential, is the first and main step. In our model of preventive archaeology, it is possible to combine research, development infrastructures and the contributions of the Malva Convention. Our proposal is based on the European standards on Environmental Assessments (Strategic Environmental Assessment Plan and Environmental Impact Assessment for projects) to establish Reserve Zones (“untouchables”) and Caution Areas (for interim protection of construction projects) to establish Reserve Zones (“untouchables”). Anyhow the early 1990s represent a radical change in preventive archaeology and the management of large developmental scale projects in all Europe.
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)
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Keywords: development-led excavations, legal system, reforms
Presentation Preference - Oral

Hungary has signed the Malta Convention among the first countries (1992), built the Convention’s main principles already into the first cultural heritage law (1997. CXI) issued after the political turn (1989), nonetheless the Convention itself just later (2000) became part of the national legislation. Preventive archaeology – in modern terms – appeared around the 1990s and quickly became the dominant way of excavating, the number of development-led excavations was the highest around 2006/2010. The history of this “evolution” from a few aspects was already discussed by archaeologists mainly in foreign publications, conferences (e.g. EPAC, EAC volumes, ACE project) – unfortunately such a debate is still missing on national level, the characteristic elements of this process, the special interest of the different actors have not yet been analysed. In this paper we focus on the period from about 2010 till now, the period that is characterised by a radical reorganisation of heritage administration under the aegis of the overall government-reform, the shutdown of the INRAP-like field service (established in 2007). The recent changes (including the accreditation of excavation institutions and firms) foster the building up a free-market like system in case of development-led large scale excavations; legal “reforms” were introduced in favour of better predictable excavations and investments and for the “benefit” of the citizen. We try to confront theory and practice to outline the problems that should be resolved.

TH2-19 Abstract 14
French preventive archaeology in a European context

Author - Salas Rosenschein, Kai, French national institute for preventive archaeological research, Paris, France (Presenting author)
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Keywords: development-led, European, preventive
Presentation Preference - Oral

Since 2001 French state decided to create a national institute to lead preventive archaeology. With more than ten years of exercise, through crisis and political changes, the Institute evolved and learned from these changes. Looking across Europe, French model still looks singular both from its accomplishments and failures. This presentation, comparing European situations with the French one, consists of a critical analysis of the French example. From this base, it proposes some common lines to be discussed at a European level. Each of these lines seem to make 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. Deapaes, 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.
Generally, commercial archaeological units in the United Kingdom perceive field archaeology in general, and osteological, zoological, ceramic and of course geophysical analysis as tried and trusted good things. The basic dig it collect what is there as finds, wash the finds and have experts look at them and give dates and functions for the various layers and a real interpretation can be applied satisfactory to all.

Now of this of course relies on good scientific techniques, it is comparison archaeology and relies on experience and gained know how and personal interpretation. Modern archaeology has made great strides in adopting a more vigorous approach to the process of interpretation. Thus Specialists and technician capable of performing Geochemical, X-ray, Geological, Landscape and Environmental analysis are viewed with suspicion and are perceived as being expensive, confusing in the ambiguity, and perceived as costly and not commercially justifiable.

Commercial units want cheap labour, trained in a few cost effective techniques that lead to lower costs and higher profits based on archaeological methodology that would not have seemed out of place in the 1960’s. This paper aims with the aid of a few case studies to show that this perspective is incorrect and in fact good and thoughtful application of scientific archaeology can not only establish where and what archaeology is on the site with minimal intervention, but in combination with geophysical analysis can establish the best and most cost effective way to investigate and evaluate it. This is not to say the numerous 30m or 50m x 2 m trenches across a site on a consultant whim doesn’t work but I will argue that a targeted environmental and scientific preliminary investigation will lead to a more cost effective and beneficial method of examining our historic environment to the benefit of all.

This 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 "Guidelines for Archaeological Measures" introduced in 2010. Archaeological Department are covered. Special emphasis is placed on the rise of commercial archaeology as well as on the application of scientific archaeology can not only establish where and what archaeology is on the site with minimal intervention, but in combination with geophysical analysis can establish the best and most cost effective way to investigate and evaluate it. This is not to say the numerous 30m or 50m x 2 m trenches across a site on a consultant whim doesn’t work but I will argue that a targeted environmental and scientific preliminary investigation will lead to a more cost effective and beneficial method of examining our historic environment to the benefit of all.

The present article deals with the structural changes that have taken place within Austria's archaeological heritage management in the last few years. Issues such as the current state of human resources and general tasks of the Federal Monuments Office's Archaeological Department are covered. Special emphasis is placed on the rise of commercial archaeology as well as on the "Guidelines for Archaeological Measures" introduced in 2010. The presented data clearly show that the restructuring of archaeological heritage management in Austria since 2010 has shown positive effects. The concentration on core competences, the abandonment of direct excavation activity and the assignment of archaeological personnel to each of the respective state departments has intensified the level of regional supervision and has lead to a considerable increase in archaeological measures taking place. Furthermore the quality of excavation documentations and their data integrity has improved through the introduction of the "Guidelines for Archaeological Measures".

This paper aims with the aid of a few case studies to show that this perspective is incorrect and in fact good and thoughtful application of scientific archaeology can not only establish where and what archaeology is on the site with minimal intervention, but in combination with geophysical analysis can establish the best and most cost effective way to investigate and evaluate it. This is not to say the numerous 30m or 50m x 2 m trenches across a site on a consultant whim doesn’t work but I will argue that a targeted environmental and scientific preliminary investigation will lead to a more cost effective and beneficial method of examining our historic environment to the benefit of all.

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.

Archaeological Park Emoana (Ljubljana, Slovenia) exhibits remains and presentations of a Roman Colonia lulia Emoana. The park consists of several locations in the center of modern Ljubljana, the Slovenian capital.

The park developed gradually from 1930-ties on. As a product of specific context, tied to the idea of Antiquity and its heritage as civilian 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 Emoana 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
Managing the archaeological heritage

The heritage of Emona into the life of modern Ljubljana, and to enable this, the renovation of infrastructure in the park was carried out, together with interpretative aids and public programmes. As tourists were one of the weakest groups of our visitors, we designed a marketing plan with them in mind, and started to collaborate with the local tourist board, Tourism Ljubljana, and designed a tourist programme together. We also included local entrepreneurs and artists in some other programmes and workshops. Owing to these changes and endeavours, we had a 25% growth in foreign visitors to the Park. However, we did experience tensions and misunderstandings due to differences in understanding archaeological heritage as a source, in ways of exploiting it, and the scope and size of the possibilities. We think those conflicts and solutions employed make a good starting point for a debate, and a very useful experience for planning the development of Archaeological Park Emona and similar enterprises in the future.

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

One of the most important topics to analyze the relationship between Archaeology and tourism is the study of its role under the parameters of touristic agents. In this context, our research team has had the opportunity to collaborate with an enterprise in an experimental project to the Spanish Ministry of Industry. The methodology is based on other European systems, especially The European tourism indicator system for sustainable destinations (ETIS), which is being experimentally tested in several towns all over Europe.

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 which have tested this methodology in two villages with a rich cultural heritage, Castril (Andalucia) and Stigia (Castilla La Mancha).

As part of a strategy of collaboration between the University Madrid and an enterprise to introduce innovation and research, we have proposed and introduced some novelties to the official methodology. Specifically, we are trying to improve the role of cultural heritage to measure sustainability of these two touristic destinations. Unfortunately, in both the European and Spanish methodology archaeology or archaeological sites are highly overlooked. In contrast to this situation, the Spanish cases of study here considered as other European destinations attract large numbers of tourists due to their past, tangible and intangible Heritage. The conclusion reveals a negative consideration for archaeological values, however, from a proactive point of view, we have started to work with this methodology and to introduce new parameters that we hope will be considered in future implementations of this methodology. At the same time, this is an opportunity to show a touristic tool in experimental use in many European countries and the attempts to adapt it to archaeological sites or archaeological management in a project where tourism is an objective.

TH2-20 Abstract 04
Crossing borders along the Dutch Limes - How the famous Roman barges of Zwammerdam support people with multiple disabilities

Author - Hazenberg, Tom, Hazenberg Archeologica, the Netherlands (Presenting author)
Keywords: Limes, visitor center, unique collaboration, Tourism

The Roman frontier fort of Zwammerdam is one of the sites along the Lower German limes, along the river Rhine in the west of the Netherlands. Beside the military fort six Roman shipwrecks are discovered. The ships represent the typical character of the Lower German limes as a river frontier, built in wetland, serving as a main transport route connecting the Germanic and Gallic hinterland with the North Sea basin. For this reason the ships play a principal role in the tourist-oriented development of the Lower German limes connected to the UNESCO nomination programme. The ships were found on the estate Hooge Burch, now owned by Ipse de Bruggen, an institute for people with multiple disabilities. 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 NGRมH PUYLUM 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 - Hanacam, Emily, Durham University, Durham, United Kingdom (Presenting author)
Keywords: Authenticity, Heritage, Volunteer

The concept of archaeological tourism, or tourism based on the experiencing of an ‘authentic’ past through the viewing of archaeological sites (Timothy and Boyd 2006), is a distinctly Western phenomenon derived from nationalist capitalism which encourages heritage consumption (Rowan and Baram 2004). There are obvious challenges in the display of heritage specifically for monetary profit, a practice which often silences alternative versions of the past (see e.g. 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 71; and hailing from New Zealand, Australia, North America, France, and the UK we find our project decidedly enhanced by the presence of retired folk eager for new life experiences. They have chosen to help excavate a site which goes a step past comparatively passive tourism to what I term participatory archaeological tourism. By engaging directly with excavations at Halmyris this demographic is able to not only live alongside rural Danubian fishermen, but gain new skills and most importantly a newfound understanding of heritage displays and the social context of the past. I believe this is one model which may be of use for other developing projects looking to finance excavation and engage alternative audiences. In this paper I will examine both the challenges and the benefits for the project in welcoming this demographic of field volunteers, and reflect on the unique experience of Romania they are able to gain through participatory archaeological tourism.


TH2-20 Abstract 06
Unexpected experiences

Author - Højbøl-Madsen, Lene, Museum skanderborg, Skanderborg, Denmark (Presenting author)
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Keywords: Art, Co-creation, Cultural Tourism

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.
A journey through time: sensory tourism in the context of archaeological museums in Poland

**Abstract 07**

**Author:** Dr. Pawlita, Michal, Adam Mickiewicz University, Poznań, Poland (Presenting author)

**Keywords:** archaelogical museums, Poland, tourism

**Presentation Preference:** Oral

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 tracing to which degree they respond to the sensory tourism tendencies. The trends discussed are illustrated by selected examples. I am referring here to the long-established archaeological museums in Poland as well as newly-open exhibitions as “Following the traces of the European Identity of Cracow”, as well as innovative trends such as those 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 multi-sensory 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?

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Museums in Central Asia: The Role of Cultural Institutions in disseminating Information

**Abstract 08**

**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 tourism is its history, starting with the Silk Road, which dates back to Roman times (Buyers, 2003), continuing with renowned scientists and scholars of the Medieval world, through the dominance of the nomads, the Russian empire, the Soviet era. If we add the beauty of nature, landscapes, cultural, archaeological and heritage unique attractions, hospitality of people, arts and crafts of the region, it is easy to understand why this region can be considered as a unique and very attractive tourist destination. However, one common denominator in all the studies is that all these countries, to a different degree, lack proper infrastructure and have not developed proper mechanisms to attract more potential visitors and tourists. One of the most often quoted sentences in the literature on the tourism industry is that information is the lifeblood of tourism. It has been clearly demonstrated in numerous studies that museums have direct impact on a country’s economy. The aim of this paper is to analyse if, and to what extent, the countries of Central Asia are competitive in promoting their national heritage. It aims to verify, to what degree historical and archaeological museums in the countries of Central Asia are able to adopt effective strategies to facilitate access to information for potential tourists in order to attract them. The issue of competitiveness of the museums on the digital level and the issue of digital divide is the most important one. Providing digital access to the exhibitions, information on museums has been analysed.

Typology of the present analysis are historical and archaeological museums in five countries: Kazakhstan, Kyrgyzstan, Tajikistan, Turkmenistan and Uzbekistan. For each country two museums were chosen for the analysis. The criteria of the choice were as follows:

- State museums
- Possessing archaeological, ethnographic or historical collections
- At least one of the museums in every of the country in question is situated in its capital.

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Exploring the touristic image on World Heritage Archaeological Sites of Europe through the Web

**Abstract 09**

**One's destination is never a place, but a new way of seeing things:** Touring a Heritage trail

**Author:** Dr. Jarosz, Katarzyna, University of Logistics, Wroclaw, Poland (Presenting author)

**Keywords:** digital divide, museum, tourism

**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 Cantón, 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 Battlefields! The Peninsular War in Castilla y León, our didactic proposal covers language use, cultural knowledge and intercultural competence, while contributing to the valorization and management of our region cultural landscapes.
TH2-20 Abstract 11

The research-presentation multidisciplinary approach - Symbiosis in Starigrad, 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 Starigrad Tourist Board, the Starigrad primary school, the Institute of Archaeology and the Archaeological museum in Zagreb (e.g. publications of research results, a series of lectures for students, the creation of interpretative boards and a preliminary presentation plan, presentational activities, the active involvement of the local community), and considering plans for future spatial research and thereby connected presentation of zones round the site of the 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 (Paklenica Nature Park, Velobit Nature Park, Archaeological museum in Zadar), as equal partners, in order to act in synergy to enrich the existing tourist offer of the Starigrad Municipality, to achieve their own Missions, and, through a contemporary and innovative approach, to enable for the creation of a kind of museum in the open which would, inside its invisible walls, inseparably connect and communicate the rich natural and cultural heritage of the entire Starigrad area in an interesting and inspiring way.

The Museum, as the initiator of the idea of this sort of research-presentation multidisciplinary symbiosis, would use its research work not only as a key step in the collecting and interpretation of scientifically-based data, but also as an exceptional presentational potential, enabling all interested persons to see the site, witness archaeological excavations via the best interactive presentation method – personal experience.

Even when local community and stakeholders are not aware or, for any reason, able to communicate their needs, the Museum constantly strives to offer a broad frame of possibilities, ideas and cooperation models in which such needs of local community and local stakeholders are detected, recognized and outspoken and, after all, always treated with special attention and respect, and, wherever possible, fulfilled in a whole for the benefit of all included participants.

This synergistic, general-heritage and interinstitutional approach includes all three functions of heritage-related institutions (research, preservation and communication) for the overall benefit of the local community and society as a whole.

TH2-21 Abstract 01

Sustainable Heritage and archaeology: a blessing or a curse?

Author: Dr. Andersson, Anna-Carin, University of Gothenburg, Gothenburg, Sweden (Presenting author)

Keywords: Archaeology, Heritage, sustainability

Presentation Preference: Oral

This aim of this short and reflexive presentation is to encourage to even more reactivity. 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? Where’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 activity a volume as exists currently funded and supported by public funds? Are institutional political models giving coverage to economic policies. What regulatory framework and political relations would be necessary to enable an archaeology and heritage management oriented towards a truly sustainable development? Is sustainable the current volume of archaeological activity a volume as exists currently funded and supported by public funds? Are institutional political models giving coverage to management formulas which have emerged outside the institutions viable? How are they articulated at the level of Public Policies concepts such as Public Archaeology and Community Archaeology? How to combine both of them with preventive archaeology, if the latter is sustainable?

TH2-21 Abstract 02

The first step on the way to sustainability: understanding the structure of land development

Author: Vannoozerieke, Jan, Ministry of culture, Chalons-en-Champagne, France (Presenting author)

Keywords: Archaeology and Heritage on the Way to Sustainability, development, earthenworks, sustainability

Presentation Preference: Oral

This author has asked the question, which is the first step on the way to sustainability? The author has asked this question in the context of land development. The author has asked this question in the context of land development. The author has asked this question in the context of land development. The author has asked this question in the context of land development. The author has asked this question in the context of land development. The author has asked this question in the context of land development. The author has asked this question in the context of land development. The author has asked this question in the context of land development.
For most archaeologists, archaeological heritage management concerns major construction works, such as motor- and railways, airports, etc. This idea, implicitly present in the Valletta Convention, doesn’t make sense anymore today. Big public works are getting rarer and rarer in Northwestern Europe. New data on all types of development, which have a destructive impact on archaeological sites, are getting available and demonstrate that these big public works represent less than 10% of archaeological destruction. In France, an inventory of all destructive earthworks was made. It appeared that housing and agricultural works are the two main destructive factors, far ahead industrial and linear (roads, etc.) works which are far less important. A lot of new types of land development, often linked with the green economy, are also important. Preventive archeology of this mass of small scale earthworks is something wholly different from archeology of large infrastructure works. It should be adapted at all levels, from the theoretical to the political and administrative level. In the long term, its public impact and sustainability are however much better.

**TH2-21 Abstract 03**

**An Archaeology of Stains. Sustainability and Responsibility in Facing Painful Heritage**

**Author:** Zalewska, Anna, Institute of Archaeology and Ethnology of Polish Academy of Sciences, Warsaw, Poland (Presenting author)

**Keywords:** archaeology of recent past, painful heritage, Stains Black and White

**Presentation Preference:** Oral

While thinking about the archeology’s capacity to endure at the time when it is facing as old as new constraints together with requirements and pressure to ‘perform’ and to be ‘socially useful’, two aspects demand discussion and comparative studies: the actual participation and efficiency of archaeologists in ‘cultural heritage management’ and tailoring (1) impact of archeology on that, what is perceived as ‘the Heritage’ by the local and global communities. Unfortunately, we are not the perfect one in taking into account social preferences. At least in Eastern Europe.

However, starting from what I have available, and treating symptoms as informative, I assume that it is worth to focus archaeological attention on the material remains of the XX Century. Some of them already became or soon will become the subjects of the archaeological studies. They are the creations of both the righteous (fair, legitimate etc.) and filthy (vile, gory etc.) events. In general, the first category can be seen as recognised and widely described historically, while the second is still shrouded in undertakings and hesitations. It also induces growing public interest and can be described metaphorically as the ‘stains’. And I assume that archaeology has an active role as a tool for sustainable development. Politicians, residents, associations and patrons need archaeologists to start projects enhancement of Heritage.

In my presentation I will expose that dimension of the concept of sustainability of archeology, on which as the crucial can be seen the potential of archeology in exploring those ‘stains’ - within the recent past history. In other words I will try to present the merits - of archaeologists’ ability to deal reflectively and responsibly with the material dimensions of ‘stains’ as with the worth attention phenomena of the ‘enduring materiality’ and - of the growing readiness of archaeologists to be socially useful when dealing with the ‘traces of the discarded’ or unspeakable. To do so, I will refer to the specific cases of archeological inquiry from Poland. To exemplify some of the nuanced arguments, the outcomes of the ongoing project titled ‘Archaeological revival of memory of the Great War. Material remains of the life and death in trenches of the Eastern Front and the condition of the ever changing battlefield in the region of the Rawa and Bzura rivers’ will be presented. That transdisciplinary project deals with the unique assemblages simultaneously neglected and marked by wars/sensitive.

Additionally, in relations to the current calls in the human sciences for a “return to things”, “evidential turn”, “forensic turn”, equals equally important as the still growing public needs for a “visible, visitable, tangible, touchable pasts” I will elaborate the reasons for which the Gadamerian question on the ways in which knowledge and its effects are affiliated remains central. I will also discuss why material remains, especially those excluded and those difficult to be grasped in words, situate archeology in position of the discipline necessary and handy for the heritage from or acquaintance with the enduring ‘stains’.

**TH2-21 Abstract 04**

**Contemporary archeology - a response to the crisis and social approach towards heritage**

**Author:** PhD Kajza, Kornelia, Uniwersyteat 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 Archaeology clearly describes the expandability and transformation of what archeology is thought to be today. It is no longer just a discipline which deals with the past of human beings and its material remains, nor is it a field of knowledge which is interested only in the ancient or prehistoric societies. Researchers became more aware that archeology to be sustainable must respond to the problems and needs of the contemporary world and that it cannot be a closed academic discipline understood only by them. Therefore, noticing that the strict binary oppositions of nature and culture, heritage and rubbish, preservation and ruination as well as past and present are questioned nowadays, archaeologists must have adapted their research questions to the changing world. Thus some of them turned to the field which strongly refers to the living communities, their memories, experiences and needs, and which relates to the problems of the contemporary world (e.g. migrations, ecology, war, industrialisation) – the so-called ‘contemporary archaeology’.

In my presentation I would like to present contemporary archeology as a field, which, in Poland, aroused from the societal expectations and is a way of responding to them. I also would like to describe strategies of experiencing the past and heritage that are undertaken in the contemporary societies which strictly relate to contemporary 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.
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)

Keywords: public archaeology, sustainable development, theory

Presentation Preference - Oral

In the last three decades, the realization that archaeologists have to engage in dialogue with the local communities is growing, and new fields such as Public Archaeology or Community Archaeology are establishing themselves as separate sub-fields of practice and theoretical reflection. At the same time, the current financial crisis (especially felt in southern Europe, but also in the Humanities and the Arts sector) forces us to find alternative and responsible ways to 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 discussion of shifting attitudes to the past both in relation to hegemonic discourse as shaped by classical scholarship, national education and nationalist ideology, but also in relation to folk culture (local legends and fairy tales) and recent influences such as film, comics, the souvenir industry and the internet.

2. The exploration of local perceptions of the past by means of a programme of archaeological (visual) ethnography. Special attention is also given to educational programmes for school children presented in the local museums and archaeological sites, as they contribute to the formation of local perceptions of archaeology and archaeologists.

3. 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.

4. 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.

The basic principle is that through a better understanding of the importance of archaeological and natural heritage, for a variety of different environments, sustainable landscape management can be realised. This project aims to provide an organisational structure for continuous training and a technical infrastructure for blended learning that will benefit the various labour markets.

TH2-21 Abstract 09
Integration of cultural & natural heritage management, developing content for blended learning

Author - MA Travaglia, Andrea, University of Amsterdam, Amsterdam, Netherlands (Presenting author)

Keywords: 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 domain. 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 (AHNER) 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) - Edozio, Mike; Sociedad de Ciencias Aranzadi, Donostia-San Sebastian, Spain

Keywords: Archaeology, heritage, vocational and educational training, Natural heritage

Presentation Preference - Poster

Contemporary thinking about heritage incorporates a wide range of realities with important economic consequences and which create new socio-economic relationships. Frequently, heritage management professionals are not familiar with the topics that are not directly related to their professional domains. In this context, the development of the project Innovative format of education and training of the integrated archaeological and natural heritage (AnHer) funded by the European Commission (Erasmus+ 2014-1-PL-KA202-005958) aims to improve skills relating to this wide vision of heritage for practitioners working in both the archaeological and natural heritage sectors. This objective means that the project aims to fill a gap not covered by traditional training systems.

The project is producing a range of innovative didactic materials which bring together an integrated vision of heritage.

The binary separation of ‘natural’ and ‘cultural’ landscape results in problematic regional, national and international legal and administrative frameworks and complicates the practice of planning and development.

The project will explicitly address challenges and needs of a vocational education and training (VET) using different methods of distance learning. The didactic content is being produced by applying innovative practices in education and training and providing the opportunity for personalised learning approaches and collaborative learning.

The training materials aim to cover the needs of rapidly changing practices in the protection and management of archaeological and natural heritage, as well as recognising the significance of integrated heritage in spatial planning and regional development policies. These materials have been produced following the detailed analysis of the state-of-the-art of training in both heritage fields and the analysis of existing training courses. These analyses made it possible to define the didactical needs of these groups and to apply this in terms of the design of new training contents and methods. The didactic materials cover the most important of interrelated 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.

The 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, public memory and memory institutions. The theme also invites archaeologists who participate in Horizon 2020 projects related to section “Europe in a changing world – Inclusive, innovative and reflective societies” and COST action “Individuals, Societies, Cultures and Health”.

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 / Universität Wien, Wien, Austria (Presenting author)
Co-author(s) - Prof. Falton, 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 - Prof. 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 - Dr. Ludewig, Marc, Universiteit Leuven, Belgium (Presenting author)

Keywords: field school, practical skills, training

Presentation Preference: Oral

The various universities in Belgium (Flanders, Wallonia and the Brussels Capital Region) have their origins in different systems and traditions: Catholic, state, or other. In the last few decades, the traditional association of archaeology with history and art history has been gradually eroded, and more attention is now being paid to specific archaeological methodology, practical knowledge and fieldwork. All universities with an education leading to the degree of bachelor or master in Archaeology now organize specific practical skills training as a part of the formal educational program. The extend and quality of these activities largely depend on the capacities and commitment of the staff members and on the adequate financial and logistic assets available. Due to many restrictions and different circumstances practical skills education still varies largely from one university to another.

As a result of the continuing financial cutbacks in education and in scientific research, universities often have insufficient resources to organize these activities in a sustainable way. Partnerships with archaeological companies have become a necessity to offer sufficient opportunities for students to learn a numerous technical, practical and administrative skills they need to operate in a highly professional environment. If this is the case, the university staff often has too little control over the quality of the work of both the student and the local supervisor. The good news is that the student can often choose a specific training shift from a wide range of opportunities, both domestically and abroad. That way, on the long run, the student is much better integrated in the professional world and already able to establish a network for his later employment.

Keywords: practical skills, standards, training
TH3-02 Abstract 01
Cultural heritage between intrinsic values and communication strategies in the time of Daesh
Author - Dr. Iacomi, Veronica, Confederazione Italiana Archeologi, Roma, Italy (Presenting author)
Keywords: archaeology and propaganda, Daesh, endangered heritage
Presentation Preference - Oral
The dreadful videos and photos issued by the alleged Islamic Caliphate of Daesh about the destruction of archaeological and historical monuments in the Middle East shocked not only the restricted circles of scholars but the whole world for brutality and terrifying violence. In a recent lecture on these topics, renowned Italian scholar prof. A. Gardina stated that in a long-term historical perspective, the correct approach to such eventsuality is neither indignation nor the search for consolation. He invited to reflect through the lens of historical comparison: nowadays, as also historian G. Bowserock noted, religion is such a political power that the ideology behind religious extremism is somehow “accepted” as a natural component of modern society. But the scale and massiveness of violence towards the cultural heritage in such countries as Syria, Iraq, and, perhaps on a minor extent, Lybia, seem to conceal a subtle and targeted purpose in terms of communication. On the one side, to impress, appal, and dazzle westerner – the propaganda for the so called “foreign fighters”, militants and sympathizers moving along other, long-established lines, such as poetry; on the other, pointing to the emotional shock at the damaging (and trafficking) of “objects of culture” so dear to westemers as world heritage, to divert the attention from the real sources of funding, weapons, political support in a complex intertwining of local and over-regional interests and political affairs. Beyond the humanitarian considerations on the state of Syrian conflict and its consequences in terms of suffrance and difficulties for the local population, a brief account on the escalation of these episodes will be presented in order to analyse the communication strategies adopted by Daesh, with respect to the central role given to the cultural heritage of Islamic states in propagandistic terms. At the same time, an overview on the policies adopted by international institutions and associations towards this “historic-archaeological tragedy” will result helpful in assessing the role given to archaeology and, more general, to the “past” as a key tool to contrast the Daesh policies on the same ground: the awareness and care of the cultural heritage considered as an essential instrument to face, for instance, the dramatic situation of refugees moving from these countries. In short, the instrumental use of archaeology in the propaganda on both fronts urges contemporary archaeologists to reflect on the value and meaning of their discipline, beyond the academic approach and at the same time well into the flow of current events on a global, worldwide perspective.
A hot topic of debate in the agenda of Institutions and associations in the field of both tourism and cultural heritage, the present-day administration of the Colosseum and other archaeological sites of Rome may represent a meaningful model for analyzing the value acquired by heritage and archaeology in contemporary Italian society. The Italian word “valorizzazione” (enhancement and promotion), in the mind of lawmakers, is meant to connect the intrinsic value - historical, archaeological, cultural in a wider sense - of the heritage with the economic return of its exploitation. During these recent years, though, in the wake of mass tourism, marketing strategies ("exploitation") are growing in importance with respect to the cultural issues which should appeal visitors (“valorizzazione”), for instance, temporary exhibitions of questionable scientific contents are promoted as a way to increase entrance fees, while panels and other educational tools seem to be inadequate to the audience needs. As a result, in other terms, is there the risk of a mere economic use devoid of real cultural contents and intentions? On the other hand, what does the general public (in this case study meant as foreigner tourists in Rome) perceive when visiting Rome? Is the Colosseum simply a “must-see” destination or a real “cultural experience”?

This speech is aimed at identifying the situational context as per public commitment of Institutions, real or presumed enhancement of the heritage in cultural terms, expectations of visitors and their fulfillment. At the purpose, the authors propose an investigation about more recent policies of investment and enhancement; a statistical analysis of the perception of the public through a survey led on site will be presented. In conclusion, considerations about the role archaeologists may and should play in these various regards will be drawn, under the peculiar perspective of the authors who experience archaeology both in an academic and scientific way, and working as official tourist guides of Rome.
OPEN ACCESS AND OPEN DATA IN ARCHAEOLOGY: FOLLOWING THE ARIADNE THREAD

TH3-03

Thursday, 1 September 2016, 09:00-13:00
Faculty of History, Room 218
Anchored by: Wright, Holy. Archaeology Data Service, York, United Kingdom
Co-author(s): Richards, Julian, University of York, York, United Kingdom (Presenting author)
Co-author(s): Siegmund, Frank, Universität Düsseldorf, Düsseldorf, Germany
Co-author(s): Gaser, Guntram, Salzburg Research, Salzburg, Austria
Keywords: Open Access, Open Data, Publication
Presentation Preference - Regular session

Will the availability of open data change the nature of archaeological research and publication? Will it also impact the ways in which archaeologists engage with wider communities? The European Science Foundation and other leading European research funders have declared their support for the "Berlin Declaration on Open Access to Knowledge in the Sciences and Humanities" - a far-reaching restructuring of scientific publishing in favour of open access that will take place before the end of the current decade. In parallel, the infrastructure necessary for open data is being created and the political pressure to use it will increase. Many areas of the humanities in Europe, including archaeology, still find this a difficult step to take. At present, the majority of highly renowned journals continue to be published in the traditional way, and research data are still generally unpublished. At the same time, the early adopters of open access and open data are still battling with the problems of how to implement it in practice. The EC Infrastructure funded ARIADNE project is working to bring together archaeological research data from across Europe, for use and re-use in new research. There are challenges, such as raising awareness about the available data, integrating datasets produced by very different projects and methodologies and various technologies. There are GIS, databases, 3D data, scientific datasets and more, all produced in a variety of languages, and all requiring differing approaches. This session is sponsored by the ARIADNE project, follows on from barriers and opportunities: Open Access and Open Data in Archaeology at EAA 2015, and will provide further updates and overviews relating to open access and open data.

TH3-03 Abstract 01
Requirements for open sharing of archaeological research data
Author: Dr. Gaser, Guntram, Salzburg Research, Salzburg, Austria (Presenting author)
Keywords: e-infrastructures, open data, repositories
Presentation Preference - Oral

There are several good arguments for open research data and over the last few years expectations of open sharing of publicly funded data have increased. For example, re-use of data in further research (e.g. based on combined data) is expected to provide much return on investment. Considerable progress has been achieved with regard to e-infrastructures and services for data sharing, access and (re-) use, but the institutional requirements are lagging somewhat behind. Such requirements include the extension of open access mandates from papers to research data, available repositories adequate for research data, and making sure that data sharers receive the credit they deserve. Researchers still perceive more obstacles than incentives for opening up their data, including additional effort, lack of academic reward, concerns that data might be misused, and more. Indeed, clear evidence of benefits of data publication, re-use and citation – both on the community and individual levels – is crucial for pushing forward the open data agenda. The paper will give an overview of the current landscape of e-infrastructures and open access resources for archaeological and other cultural heritage research, and highlight institutional and other requirements for further progress and innovation through open data over the next 5 to 10 years.

TH3-03 Abstract 02
The Reputation effect
Author: Dr. Gattiglia, Gabriele, University of Pisa, Viareggio, Italy (Presenting author)
Co-author(s): 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.

The recognition for making data available to other researchers means to provide data citations, so on January 2015, the MAPPA Lab of the University of Pisa promoted the first peer review Data Book dedicated to Italian archaeology. The idea was based on the assumptions that data need to be treated as a relevant part of the archaeological record and that only properly curated research data (not only data paper) should be connected to primary data. These biannual volumes called MAPPA Data Book are conceived as a series of archaeological monographs designed with a dual level of publication: a paper, in which the archaeologists can analyse the data recorded, and the data set published as open data in the MOD (MAPPA Open Data), the open data repository of Italian archaeology. The volumes are published as open access and in a print on demand mode.

As for fostering network-based interaction, we are going to launch a communication campaign aimed to promote the use of academic social network, such as academia.edu and researchgate.net, for embedding the links to the data sets archived in our repository. In this way, on the one hand the archaeologists that share their data can take advantage of the academic social network realised by these platforms and of the metrics that reflect the impact of a contribution, on the other hand the repository can focus on data publication and long term preservation.

Thus archaeological data sharing becomes a way for researchers to collaborate and thereby meet the needs of an increasingly complex research landscape, and the reputation effect becomes a way to foster data re-use.

TH3-03 Abstract 03
Antiquarians in the 21st Century: Opening up our data
Author: O’Riordan, Emma Jane, Society of Antiquaries of Scotland, Edinburgh, United Kingdom
Co-author(s): O’Dohone-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 ScARF has seen over 262,000 page views. And yet these final reports are only the tip of the archaeological data mountain. As an archaeological publisher, if we aspire to the true aims of Open Access, we should be making the original data available for re-use, data mining and new interpretations. But how can these aspirations be carried out in practice when the data is so vast and varied? As a small independent organisation, we must look to collaboration. How best to do this? One possibility is drawing from the models created by computer scientists and scientific publishers more used to dealing with raw data rather than ‘coffee-table books’. However, making the data available is not only a technological issue – there are already data downloads available in parts of ScARF and SAIR, for example - but a cultural one. Many archaeologists are cautious about openly sharing raw data and we must consider how best to reconcile the needs of authors and remaining true to our own aims of truly open knowledge.

In conclusion, the increasing number of users, as well as the increasing variety of uses, means that it is time we make archaeological research data open. The benefits of data sharing 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.

Keywords: open access, publishing, research
Theoretical and methodological perspectives in archaeology

Beyond the Pale: grey literature as a method of publication

TH3-03 Abstract 04
Beyond the Pale: grey literature as a method of publication

Author: Dr. Evans, Tim, Archaeology Data Service, York, United Kingdom (Presenting author)
Keywords: grey literature, open access, publication
Presentation Preference: Oral

The aims of the project ‘Digitizing Early Farming Cultures’ are to create standardized and integrated research data of Neolithic and Chalcolithic sites and finds of Greece and Anatolia (c. 7000-3000 BC according to Greek terminology), two neighboring and archaeologically closely related regions usually studied in isolation of each other. The data will be made available online ensuring compliance to standards in data production for data sharing (metadata and mapping) and interoperability with related initiatives.

The resources that form the basis for the new dataset include digital resources (site- and pottery- and bibliographic- databases in different formats) and also analogue resources such as unpublished manuscripts, site gazetteers and a pottery collection. The resources result from different projects that span over the last four decades and where different methodologies, terminologies and chronologies have been used. In the project we use various methods to integrate the data: creation of a new site database, mappings to CIDOC CRM and digitising of finds (3D pottery models) and attribution with relevant metadata.

Data are currently published on-line at the end 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.

Beyond the Pale: grey literature as a method of publication

TH3-03 Abstract 07
Beyond the Pale: grey literature as a method of publication

The SITAR project (Rome).

Achieving interoperability and opening data: practical implementation

Author: Boi, Valeria, archaeological consultant, Roma, Italy (Presenting author)
Keywords: ARIADNE, CIDOC-CRM, Open Data
Presentation Preference: Oral

This paper follows on from a contribution presented within the session “Barriers and opportunities: Open Access and Open Data in Archaeology” at EAA 2014. In 2014, we discussed the theoretical implications of data sharing and interoperability within the SITAR project. On this occasion, we want to provide an update of the practical implementation of information-sharing path, regarding the choice of data licenses, the privacy protection and intellectual property rights, and in the respect of the CIDOC-CRM mapping of SITAR database.

The SITAR (Archaeological Geographic Information System of Rome) has been designed and implemented by the Archaeological Superintendency of Rome, with the aim of making the archaeological data, coming from the Office’s archives, freely accessible to the public. SITAR database is now made up of about 4,000 information-source records. Information related to archaeological excavations or other archaeological studies or surveys, from which about 14,000 record of “archaeological part” have been identified, each of which represents a descriptive unit distinguished on the basis of a chronological and functional criteria.

Data are currently published online on STAIR Project’s WebGIS portal (http://webis.archeologiae.it/project/webgis/login.php), where they can be freely consulted.

SITAR Project, partner of the Ariantrē 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 (CICIU) and the University of Padua, and in particular it intends to return to reflect on the selection of methods for achieving interoperability between databases, on Open Data release within Ariantrē and the managing and licensing of original archive documents, i.e. grey literature, which have been digitized.

Digitizing Early Farming Cultures: integrating resources from Neolithic Greece and Anatolia

TH3-03 Abstract 08
Digitizing Early Farming Cultures: integrating resources from Neolithic Greece and Anatolia

The aims of the project ‘Digitizing Early Farming Cultures’ are to create standardized and integrated research data of Neolithic and Chalcolithic sites and finds of Greece and Anatolia (c. 7000–3000 BC according to Greek terminology), two neighboring and archaeologically closely related regions usually studied in isolation of each other. The data will be made available online ensuring compliance to standards in data production for data sharing (metadata and mapping) and interoperability with related initiatives.

The resources that form the basis for the new dataset include digital resources (site- and pottery- and bibliographic- databases in different formats) and also analogue resources such as unpublished manuscripts, site gazetteers and a pottery collection. The resources result from different projects that span over the last four decades and where different methodologies, terminologies and chronologies have been used. In the project we use various methods to integrate the data: creation of a new site database, mappings to CIDOC CRM and digitising of finds (3D pottery models) and attribution with relevant metadata.

Data are currently published on-line at the end 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.

Digitizing Early Farming Cultures: integrating resources from Neolithic Greece and Anatolia

TH3-03 Abstract 06
Digitizing Early Farming Cultures: integrating resources from Neolithic Greece and Anatolia

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Co-author(s): Boi, Valeria, archaeological consultant, Roma, Italy (Presenting author)
Keywords: ARIADNE, CIDOC-CRM, Open Data
Presentation Preference: Oral

This paper follows on from a contribution presented within the session “Barriers and opportunities: Open Access and Open Data in Archaeology” at EAA 2014. In 2014, we discussed the theoretical implications of data sharing and interoperability within the SITAR project. On this occasion, we want to provide an update of the practical implementation of information-sharing path, regarding the choice of data licenses, the privacy protection and intellectual property rights, and in the respect of the CIDOC-CRM mapping of SITAR database.

The SITAR (Archaeological Geographic Information System of Rome) has been designed and implemented by the Archaeological Superintendency of Rome, with the aim of making the archaeological data, coming from the Office’s archives, freely accessible to the public. SITAR database is now made up of about 4,000 information-source records. Information related to archaeological excavations or other archaeological studies or surveys, from which about 14,000 record of “archaeological part” have been identified, each of which represents a descriptive unit distinguished on the basis of a chronological and functional criteria.

Data are currently published online on STAIR Project’s WebGIS portal (http://webis.archeologiae.it/project/webgis/login.php), where they can be freely consulted.

SITAR Project, partner of the Ariantrē 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 (CICIU) and the University of Padua, and in particular it intends to return to reflect on the selection of methods for achieving interoperability between databases, on Open Data release within Ariantrē and the managing and licensing of original archive documents, i.e. grey literature, which have been digitized.
data aggregation infrastructure include: ingestion, normalization, transformation and validation processes that mainly focus on the homogenization and cleaning of heterogeneous data. A portal is usually employed to present this information to end users and is met with limited success due to the vast information contained. In order to increase the quality of services that are provided to end users, the European funded project Ariadne (http://www.ariadne-infrastructure.eu/) aims at integrating this data by modelling the underlying domain and providing the technical framework for automatic integration of heterogeneous resources.

The heart of the infrastructure lies in the underlying domain model: Ariadne Catalog Data Model (ACDM), a DCAT derived model which models a large number of entities such as Agents, Language resources, datasets, collections, reports, services, databases, etc. With the help of a of micro-service oriented architecture and a set of powerful enrichment micro-services all aggregated data are transformed into XML and RDF, annotated over subject, space and time with the help of AAT, Geonames and Peri.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 such as vocabularies. Complex records can be split into their individual components, represented, enriched and stored separately while maintaining their identity using semantic linking. Each integrated resource is assigned a URI and published to:

- Virtuoso RDF Store in RDF which provides a SPARQL interface
- to Elastic Search in JSON which provides a powerful indexing mechanism that can help present and associate resources accurately in real-time.

This approach can provide developers and creative industries with the means to create innovative applications and mine information 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.

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<th>TH3-03 Abstract 09</th>
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<td>Author: Dr. Wright, Holly, University of York, York, United Kingdom (Presenting author)</td>
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<tr>
<td>Keywords: ARIADNE, Linked Data, Open Data</td>
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<td>Presentation Preference: Oral</td>
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Ariadne is a four-year EU FP7 Infrastructures funded project, made up of 24 partners across 16 European countries, which hold archaeological data in at least 13 languages. These are the accumulated outcome of the research of individuals, teams and institutions, but form a vast and fragmented corpus, and their potential has been constrained by difficult access and non-homogeneous perspectives. Ariadne aims to bring together and integrate existing archaeological research data infrastructures, so researchers can use these distributed datasets in combination, and in new ways. This paper will give an overview of the progress of the Ariadne project, focusing 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 Peri.do. As Ariadne is in its final year, conclusions can begin to be drawn on the challenges faced along the way, and possible directions for the future.

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<th>TH3-04 Abstract 01</th>
<th>Medieval archaeology in Europe. Chronologies, topics, perspectives</th>
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<td>Author: Dr. Ciller, Carlos, University of Siena, Siena, Italy (Presenting author)</td>
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<td>Keywords: Europe, medieval archaeology, Mediterranean Presentation Preference: Oral</td>
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Europe is a small peninsula at the western comer of Eurasia. However, its history is fragmented. There is a general agreement to consider middle ages the period between AD 500-1550, though this is only an agreement among scholars. Terms like late antiquity is meaningless in northern regions, while late Iron age is out of the time span for the Mediterranean. Coherent chronologies have been adopted in each region, but it is not easy to relate all of them one another. Topics are very different too. Christian organisation of towns and countryside is a key issue for the Mediterranean since the 4th c., while in Scandinavia or the Slavic territories it occurs much later. The making of the medieval town has to relate to the Roman past within the borders of the former empire, while it has different roots outside it. Material culture is different too. The impact of stone architecture is different both from a chronological and geographical point of view. Literary sources are almost absent for many regions up to the Carolingians, while for others they are abundant since the late Roman age. Thus, it seems that medieval archaeology in Europe should resign itself to be an undefined mass of data within a time span which has nothing to do with reality. On the contrary, it is clear that the end of the Roman vast, the fragmentation of the Mediterranean, the emerging countries of the northern and eastern regions allowed a closer relationship even at a long distance. Muslims were in contact with the Vikings, the Saxons with the Mediterranean, people moved to trade, and not only for this. Archaeologists often focus on regional studies, while they should also stress these long distance connections.
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 framework 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 iconic and archaeological archaeology to the castles of the Middle East. Like other historical archaeologies, Islamic archaeology has also often suffered from a sense of inferiority to the written records and has only recently begun to overcome it.

One of the first and foremost articles dealing with the theoretical issues of the discipline was published at the end of the 1980s (Insoll, 1999) and since that moment publications taking a stake of the discipline and its theoretical frameworks have grown (see for example Walsmy, 2004 and 2013; Milwright, 2010; Tonghini 2014).

The presentations aim 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 this symposium 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.
Sudden and almost complete changes in material culture are, in archaeological contexts, frequently ascribed to migration. An invariable accurate replacement of Romano-British artifacts by those from north-west Europe in many parts of England in the first few decades of the early fifth century AD.

The paper begins by offering a brief critique of current models for explaining such rapid change in which migration is given a leading role: military cohesion among migrant groups; their apparent resistance to assimilation; replacement of existing leaders by high status immigrants; and ethnogenesis, the deliberate framing of political ideologies aimed at rationalizing territorial control. It notes that all elements of such models take a 'top down' view, in which access to power is predicated on status and wealth within hierarchical political structures, and where cultural change is explained in terms of leadership by an elite.

The paper moves to an alternative, experimental, ‘bottom up’ approach to investigating rapid changes in material culture. It begins with the premise that all aspects of a stable, sustainable, agricultural economy depend on property rights over land. Access to and exercise of property rights enable an individual to make a living, offer the opportunity to generate a surplus or acquire goods, and create opportunities for personal interaction with elites through tribute, gift-giving or taxation. An analysis focused on the practical management of agricultural property rights offers the possibility of a ‘bottom up’ perspective on cultural change that anchors abstractions about social relations into the everyday realities of making a living.

The paper then explores the impact of migration on the daily lives of peasant cultivators through their common property rights in territorial resources. It notes the structural link between property rights and governance, the role of the latter in the regulation, maintenance, protection and enforcement of property rights, and the generalized predictability of frameworks for governing shared resources – in particular their characterization as ‘horizontal’, predicated on equity among all right-holders and exemplified through normative expectations of participation and consensus. It goes on to examine Ravenstein’s (1885) classic conclusions about migrants and the migration process through the lens of common property rights and their characteristic governance structures. It concludes that, however great sudden changes in material culture might be, if there is archaeological evidence for the contemporary continued exploitation of collective resources then it is highly likely that immigrants and their descendants were assimilated into receiving communities and that they were unlikely to have been a driving force in that cultural change.

The argument does not discount the possibility of cultural change as a result of variations in access to resources, wealth and status whether or not as a result of migration. Nor does it challenge the existence of political and social hierarchies. It argues, instead, that the complementary contribution of collective traditions should not be neglected in explaining transformative cultural change. The paper concludes by suggesting the need for more complex, more dynamic, perhaps even epidemiological, models to explain change in the human past.
TH3-05 Abstract 03

Where is the Feminism in Archaeology?

Author: Tung, Joana, University of Southampton, Poole, United Kingdom (Presenting author)
Keywords: Feminism, Gender, Survey

This poster examines the extent to which feminist theory has been integrated into research and teaching within archaeology. Based on a study of publications and the modules taught by archaeologists who have previously published on gender and feminism in archaeology, the state of the discipline in relation to feminist theory and the complexity and problematic features of the integration of feminism into mainstream archaeology are revealed. The results show that publications which are of interest to feminist scholars are found in many academic journals, yet a notable lack of archaeological publications explicitly assert a feminist perspective. Most publications have a tendency to take either a more neutral approach found in ‘apolitical’ gender archaeology or a post-processual interest in experience, embodiment and phenomenology. Can we then assume that feminist archaeology has successfully managed to integrate into mainstream archaeological thought? Results of a survey of the profession, in particular of academics with teaching posts indicate that archaeological modules which focus on feminism in both undergraduate and postgraduate settings have now fallen by the wayside. By investigating publications of a specifically feminist or gender archaeology together with modules taught at universities across the Western academic archaeology tradition, the results of this research illuminate a post-modern trend to scrap categories and accordingly the marginalisation of those subjects which require categorisation for acknowledgement.

TH3-05 Abstract 04

Politics and archaeology in an uneuring universe, or feminism without historical binaries

Author: Professor Robb, John, University of Cambridge, Cambridge, United Kingdom (Presenting author)
Keywords: evolution, gender, politics

This paper pursues the paradoxes which result from the collision of three facts: (a) Archaeological and historical accounts of the past are often taken as foundational narratives and laden with political meaning, following on from this, archaeologists have a responsibility to make sure that our work is used in productive rather than destructive political ways. (b) We also have a responsibility to say true things about the past. (c) People in the past were often deeply political incorrect, with attitudes and practices different from today’s and sometimes no doubt entirely appalling by modern standards. The prehistory of gender relations is an example. Archaeologists have responded to this paradox in varying ways, none satisfactory. One is by not engaging with the question of whether the past acts as a political mirror for the present. A second is by adopting a “see no evil” approach where we contemplate only positive aspects of the past. A third is to fit the past within the three traditional narratives (historical lack of change means natural inevitability, progress towards utopia, and progress towards dystopia). All of these rely upon an underlying, often unspoken rigid and distorting historical binary distinction between “us” and “them”, the modern and the pre-modern. As a counter-example, I explore a revisionist history of gender in which not only the “content” of gender but its existence and definitional form is seen to evolve continuously throughout human history. A feminist approach in this case is not about championing the interests of one sector, but about exploring the possibility for difference of all kinds, including gender 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 are ‘exceptio firmat regulam’?

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 ‘60s, influenced largely by changes observed in culture and cross-border mentality, as witnessed young graduates Portuguese archaeologists academically in other European countries.

Using methodologies of history 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

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 as 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

One of my favourite thinking-things are the findings unearthed by Leonard and Kathleen Woolley and their workmen in the Royal Cemetery at Ur in what is today South Iraq. The archaeological record of the cemetery (around 2500 BC) is well known beyond the narrow limits of ancient Near Eastern studies partly because of the exceptional grave goods, which still provide one important fundament of our knowledge of ‘Sumerian culture’, partly because of the mass burials the excavators came across in some special graves. To my knowledge there is probably no theoretical approach, popular in archaeology the last 20 years or so, that was not used to ‘explain’ these mass burials, often hardly noticing the actual archaeological record. Now, my approach to make sense of the findings of the Royal Cemetery was always very material based taking into account not only the 16 ‘special graves’ but the whole Early Dynastic cemetery (roughly 460 graves). The result is this: scarcely anything fits together and everything seems contradictory. The situation may be summed up in one statement (actually a Detroit based music collective’s motto): UR, 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 4600 year old ancient grave with Foucault’s concept of ‘docile bodies’? Is it really satisfying to reduce human behaviour to performances of power/ performance?

If we want an archaeology that actually respect ancient people’s lives and attitudes, should we not accept the resistance of the dead of Ur against our access/ exploitation? Whom do we serve by producing fantastic ancient worlds (supported by sophisticated postmodernist frameworks) standing on test of clay (literally in the case of ancient Near eastern studies)? I strongly advocate decentralizing perspectives in archaeology. This is an ‘archaeology of the gap’ of blanks 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.
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 the notion of intersectionality. Three questions are fundamental: who are the weavers of adornments, why do they wear them and for whom? Furthermore, which aspects of adornments are used by several human groups as a medium to create social categorisation and which other aspects can be individualised? Finally, how bodies and movements of men and women can be controlled by means of adornments and to which aspects of gender ideology of each society this can be linked? Therefore, this research project aims to investigate to what extent social anthropology can allow us to better understand the bodily and symbolic use of buried adornments.

Wilson Duff (1975: 12) opens his book images stone b.c.: “Images seem to speak to the eye, but they are really addressed to the mind. They are ways of thinking, in the guise of ways of seeing.” Duff went on to suggest that the choice of stone as a medium for seeing-thinking was a move designed to place thinking outside of time – and thereby into a world of being (cf Marshall 2000 World Archaeology). In a recent article in the Canadian Journal of Archaeology (2019), Natasha Lyons and I argued in a similar vein for an understanding of objects as spatial ‘telling’ materialised in non-linear, non-narrative and therefore a-temporal forms. Our common position with Duff is that objects/images are arguments concerning possibilities for being and becoming, not representations of beings.

Using whalebone clubs as my forum, I show in this paper how the Nuu-chah-nulth people of Vancouver Island, British Columbia, create object ‘telling’ (ways of thinking) which set out a moral or ontological geography. Moral travel through this geography constitutes a process of becoming which produces difference (cf Marshall 2012 Feminist Theory). Simple moral travel produces everyday growth and change. But when more fundamental transformation is sought, through engagement with great power or wealth, moral travel is demanding and dangerous. The transformative possibilities of moral travel are calibrated in effort and risk.

TH3-05 Abstract 11
Material feminisms and the question of anthropomorphism in northwest Argentina
Author - Alberto, Benjamin, Framingham, United States of America (Presenting author)
Keywords: Anthropomorphism, Feminism, Materiality
Presentation Preference - Oral
Elizabeth Grosz has argued that new ontologies are essential for new grounds of feminist politics. Anthropomorphism in ceramic forms, often encountered in archaeology, always risks reduction to only a metaphoric expression in which the substance of the thing - its materiality, its ground - is left unquestioned. An absolute divide between fleshly body and ceramic body underlies and results from such reductionism. Addressing the ontological status of sex, gender, and the materiality of bodies, as Grosz has for many years, provides new ways to conceive of different bodies and their relationships.

I bring into focus the potential for new ontologies of bodies informed by feminist and queer approaches to materiality through a study of a collection of anthropo- and zoomorphic ceramics from first millennium AD northwest Argentina. As Grosz suggests, differences are enacted equally through or across ‘natural’ and ‘cultural’ processes, the ceramics can be understood as materialities/bodies that share processes in common with other bodies (flesh, stone, etc.) regardless of the stuff out of which they are made. Anthropomorphism then becomes less a question of resemblance and more one of marking and enacting difference.

TH3-05 Abstract 12
Foreign women – from merchandise to merchant. The change in interpretations
Author - Dr Koch, Julia Katharina, Lektorat für Archäologie, Preetz, Germany (Presenting author)
Keywords: gender archaeology, capability, 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 “Holgergräber”. Bronze Age or in Late Iron Age burials near the oppidum Manching buried with foreign artefacts are combined with images of passive female roles. Influenced by a changed image of social female roles in Europe the interpretations permit actually similar Early Iron Age women an active role in trade networks around the Alpines. But independent of interpretations the archaeological data are always the same – female burial with a mixture of local and non-local jewellery. So, how can we know how active or passive such women could have been as social actors in prehistoric times? The paper discusses the change of interpretation for the background of the increasing influence of gender theories in Archaeology and asks about the possibility of approximation to prehistoric realities beyond modern ideals and utopian (feminist) wishes. A further aspect of this topic is the influence of the new scientific methods like isotope analysis on actual mobility models.
Theorene and methodological perspectives in archaeology

Implementing Intersectionality: Diversity of Viking-Age Shields

Author: PhD student O. Näversköld, Kerstin, Stockholm University, Sundbyberg, Sweden (Presenting author)

Keywords: Identity, Intersectionality, Viking Age

Presentation Preference: Oral

This paper presents parts of my current research, in which I study Viking-age shields using intersectionality as an analytical tool. All though discussed for years, intersectionality as an archaeological analytical method is still relatively unexplored. Hence I will outline some possible methodological implementations of intersectionality with regards to a specific research material, using shields and representations of shields as an example. I will also present some of the identity categories that are visible in the material and how they possibly interact.

Weighing up with respect to object and identity markers, I aim to understand how the different shields reflect identities and practices that intersect. Using intersectionality as a multi-dimensional analytical tool for studying power and social hierarchy, by pinpointing different aspects of identity (such as gender, religion, class, etc.) I propose it is possible to identify features that overlap the material/non-material shields. Taking intersectionality as a starting point creates the potential to highlight the seemingly diverse and complex aspects of shields in the Viking Age that previously have been overlooked.

Body, scale and affectivity – reflections based on Viking Age imagery

Author: Prof. Anwli-Nordbladh, Elisabeth, Dept. of Historical Studies, Gothenburg, Sweden (Presenting author)

Keywords: Affectivity, Body, Viking Age

Presentation Preference: Oral

In feminist research, the body is often highlighted as a central node, from which various relational perspectives are organized. In this paper, the question is raised on how the situated body relates to the affective affordances of the small and the larger than life sized object. Based on a case study of Scandinavian Viking Age miniature objects and rune stone imagery, the situated sensing and experiencing body will be discussed from a perspective of intersecting affective communities.

“Chercher la femme”. Interpreting the late Iron Age record in Gaul

Author: Fleury, Béatrice, Bruxelles, Belgium (Presenting author)

Presentation Preference: Oral

Late iron age studies, by the very nature of the main written source, “Caesar De Bello Gallico”, our modern western view of war, and periods of unrest and culture change, as well as the trend towards the interpretation of records through male directives of research strategies, mostly lead to geopolitical and economical models of culture change, and by a self-feeding process, overlook the clues enabling archaeologists to identify in the records, and therefore in future record, the missing links leading to alternative interpretations.

Indicative are the titles of the majority of classical archaeological monographs, “Le pas des legions”, “Roman frontiers” (or non-defined genders given the neutrality of linguistic terms “ the god of the Celts”, “Les Cetts”, “Celtic art”).

One could argue that in the process of synthetizing the new discoveries, in the long term historical interpretation, one might still easily miss the presence of females in archaeological contexts, and therefore their role in society, with implications in the long term historical interpretative framework and therefore in the building of contemporary ideology.

Indeed, interpretation of the status and role of females in society of a given period would rely on texts, inscriptions, figurative representations, burial types; as no indices appeared in northern Gaul LIA contexts, and their tangibility in other areas, on tomus indications in earlier contexts. There, the arid nature of the archaeological witness, in a traditional interpretative schema leads to conclude that lack of evidence is proof of absence, however this is no proof of non-existence, and criteria could be inferred from wider context in order to find missing links in further research.

For the purpose of sociological interpretation, bolder authors refer to classical historical records, as well as later testimonies, so that sociological discourse oscillates between myth and reality: mentions in later Celtic societies of great Britain, or poetical inferred from wider context in order to find missing links in further research.

In order to test this approach, this research investigated the early Anglo-Saxon Worthy Park burial ground in Hampshire, England using queer, performance theory, and Marxism. Worthy Park was chosen because it represents a cultural complex that is thoroughly reported; the remains are excellently preserved, and the burial ground contains a large number of inhumation burials with a diversity of burial offerings. This research found that at Worthy Park, the most closely clustered individuals were males based on their burial offerings, with subadults following closely behind; possible males/females were not numerous enough to make a precise conclusion while females were the most diverse of all sex assessment categories in terms of burial assemblages.

Researching the Late Iron Age in Gaul

Author: Downer, Abigail Gorkiewicz, Trent University, Stouffville, Canada (Presenting author)

Co-author(s): Williams, Jocelyn, Trent University, Peterborough, Canada

Keywords: Mortuary Archaeology, Queer theory, Skeletal Sex assessment

Presentation Preference: Poster

One of the first things bioarchaeologists do after coming across human skeletal remains is to assess the basic biological characteristics of an individual: their age and sex. Sex assessment involves looking at morphological and metrical characteristics in the skeleton that allows researchers to place an individual in one of six available sex categories: male, female, possible male/ female, ambiguous, or indeterminate. Often, these categories are collapsed into two categories (male and female) in two ways: 1) possible males/females are incorporated into the male and female categories, or are excluded; 2) skeletons sexed as ambiguous are either left unreported or are seen as errors of the acting researcher. These approaches may leave out variability in biological sex that is naturally observed in humans, and may impede researchers investigating non-binary gender and sex identities.

In order to test this approach, this research investigated the early Anglo-Saxon Worthy Park burial ground in Hampshire, England using queer, performance theory, and Marxism. Worthy Park was chosen because it represents a cultural complex that is thoroughly reported; the remains are excellently preserved, and the burial ground contains a large number of inhumation burials with a diversity of burial offerings. This research found that at Worthy Park, the most closely clustered individuals were males based on their burial offerings, with subadults following closely behind; possible males/females were not numerous enough to make a precise conclusion while females were the most diverse of all sex assessment categories in terms of burial assemblages.
REVEALING THE MAKING AND BREAKING OF COMMUNITY IN EUROPÉAN PREHISTORY

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, crate, 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 inquired into the ways in which power was acquired and deployed and in particular concentrated at the massive site of Knossos. While recent scholarship has looked at earlier periods as something more than just the prelude to the palaces the discussion still envisages community as polity. But Hutchings (2007), Goodison (1998) and Chappin (2001, 2004) have pointed to another element in palatial culture that suggests different ways of envisioning community, the intentional inclusion of the natural world in the organization and appointment of the palaces - orientation toward natural elements, the presence of rough baestly, 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 emmeshed 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. 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 - accessible as well in the peontru of animals and birds and plants in all media. Three case studies will consider this alternative to looking at the making and breaking of community.

TH3-06 Abstract 02
The making, the breaking and the remaking of the Greek Neolithic Community

Author - Consulting Prof. Pyrgaki, Maria, Hellenic Open University, Athens, Greece (Presenting author)
Keywords: Community, Meshrwork, 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 (Amit 2002; van Wees 2008). The community acts as a meshwork for how people, things, feelings and ideas are limited by some kind of association. The paper explores these mechanisms through conference papers with references to networks, entanglements (Hodder 2011, 2012) and assemblages (following Delueze and Guattari 2007; DeLandra 2006). This paper discusses the Ingo’s idea of meshwork. Ingold (Ingo 2017) takes inspiration from Deleuze and Guattari’s idea of assemblage and he proceeds 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).
Entanglements of pottery acquisition strategies in the Mycenaean palace at Pylos

Author: Zieran, Pietr, 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 (Voutsaki and Killen 2001, Pullen 2010). The idea of the “palace”, which was supposed to be dominant in Mycenaean social and economic landscape, still constitutes the foundations of our thinking about the processes taking place in the Late Bronze Age Aegean. But in the meantime, many scholars have pointed out a clear duality in Mycenaean economy. It consisted of the “palatial” section, visible thanks to the archives of Linear B tablets, as well as “non-palatial” section, noticeable only by the archaeological remains and sporadically appearing in the archives (Shelmerdine and Palaima 1986, Bennet 2001, Knappel 2001, Whitley 2001, Gally 2007, Nakas 2010).

Within the broad subject of Mycenaean economy I would like to scope only on the one particular subject of pottery acquisition strategies in the palace of Pylos, narrowing the analysis only to the last period of its existence. The duality of Mycenaean economic system mentioned above, can be clearly seen and presented within that subject. The period LH II B, dated roughly to the 13th century BC (Shelmerdine 2008: 4), is the climax of Mycenaean palatial civilisation, containing most of available archeological remains. The palace at Pylos, after 300 years of development was by that time a complex, bureaucratic, administrative and industrialized structure (Wright 1986). It’s organisation and ways of controlling the society and economy were the subject of numerous papers and analyses, approaching this extremely wide subject with different perspectives and propositions (Shelmerdine and Palaima 1986, Voutsaki and Killen 2001, Gally and Parkinson 2007, Pullen 2010). I would like to propose a combined model based on earlier papers. The strategy of palatial pottery acquisition system will be presented as, an again two-dimensional system, with two main pillars. Firstly, the pottery industry has been affected with the designation of the “royal” potter, who probably together with his co-workers or competitors listed on tablets, had become high-rank and specialized producers, cooperating with the palace, supporting the waras in fulfilling his duties and enjoying special privileges. The second pillar of the pottery acquisition strategy was obtaining all the other needed vessels through a taxation of various local workshops, existing in the town of Pylos and the internal part of the Hither Province of the state. I would like to present this model using the idea of entanglements, created by Ian Hodler (2012). Outlining the wide web of dependences, between things and humans involved in Pylian pottery industry, will help to better understand its complexity and position in the Mycenaean community of Messenia.

Creating Locality: Place and Community along a Fen River

Author: Dr. Kohring, Sheila, University of Cambridge, Cambridge, United Kingdom (Presenting author)
Co-author(s): Boulden, Kate, University of Cambridge, Cambridge, United Kingdom
Keywords: community, landscape, locality

Presentation Preference - Oral

How do you define ‘being a local’? Often this is an intangible concept wrapped up in a sense of community identity including an intimate knowledge of your social network and immediate environment. Embedded in this is a shared understanding of the time depth and history of a place. However, communities within a given landscape are in constant fluctuation and while certain features may act as physical markers and boundaries of place – even if the narrative associated with them changes – others are forgotten as the community around them reorients and changes the way it collectively understands the world. In essence, some landscape structures and the immediate physicality of the world interplay in this example to highlight the constantly changing sense of local knowledge, place and community.

Experiences from the Farming, Forestry and Rural Land Management Working Group

Author: Dr. Holyoak, Vincent, Historic England, London, United Kingdom (Presenting author)
Keywords: common agricultural policy, European Commission, rural

Presentation Preference - Oral

The EAA/EAC Working Group on Farming, Forestry and Rural Land Management has been active now for over 10 years. Its foundation and its subsequent work have been a recognition that - not only is the European Commission more active in rural policy
The theoretical and methodological perspectives in archaeology

Explore the opportunities for a European Network of archaeological associations with EAA as an overall body. In the last year, it seems that the organization is moving towards a more political active and more organized. Yes, as individuals we can achieve great results in influencing politics and decisions. But even with this in mind, generally speaking, we as individuals in EAA can only expect to be heard if we are represented by larger organizations, such as Eurogeo or bodies who may have divergent or even conflicting interests. As with all negotiations, dialogue must then focus on the “art of the possible” - seeking to identify the potential for common ground. Over the past decade, there have been several occasions when we wanted to speak on behalf of EAA, especially on consultations by the European Commission regarding Rural Development. However, it is also clear that more political activity is needed. 

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 them to present their work and communicate what they have done in the year between two conferences. The small report working groups are asked to give at the Annual Business Meeting are mostly either cancelled or shortened. Therefore, I would also like to present and discuss some ideas how the working groups can be made more visible within the EAA, which could bring them on the one hand more active members, on the other hand can promote the collaboration between the different working groups.

From Incident to Structure.

Possibilities for a network of professional Associations within EAA

Archaeologists have power, real power. The power to inspire; the power to bind people; the power to influence; the power to address and make change. We are perceived as interesting. We, ourselves and our work have a pull on the general audience and fellow human beings. Our potential “selling power” makes the average politician and activist drool. In the past 50 years we have incidentally used our influence to protect Cultural Heritage to great effect. EAA can look back on a series of successes where it was able to effect developments to protect Archaeology in Europe. But even with this in mind, generally speaking we as individual archaeologists or even as a group feel that we are politically weak, or even powerless. As long as the CPAAs 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 CPAAs is that we need a constant and structural stream of actions to influence law, 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 past year it seems that the organization is moving towards a more active political role.

What would be needed to enhance EAA with a successful political machine? What would EAA need to fulfill that role? How would CPAAs and other committees and working parties need to evolve to make this possible? This presentation would like to explore the possibilities for a European Network of archaeological associations with EAA as an overall body.
**TH3-08 Abstract 01**

**Technology and the Arrow of Time**

**Author:** Dr. Duckworth, Chloé, University of Leicester, Leicester, United Kingdom (Presenting author)

**Co-author(s):** Goyantos Edwards, David, Universidad Nacional a la Distancia, Spain

**Keywords:** archaeological theory, archaeometry, technology

**Presentation Preference - Oral**

We argue that evolutionary assumptions are still prevalent in many areas of archaeological research, regardless of whether or not they are made explicit. While there is undoubtedly a place for such models, they can also have negative effects on our understanding of the past, driving us to frame change in a developmental sequence and omitting those parts of the picture which do not accord with this 'single story'.

This is particularly true, we suggest, of the archaeology of technology. A key problem is that we have no clear archaeological definition of 'technology'. In modern English, the term generally applies to the cutting edge of a given period; that is, to novel practices or products only. Longer-lived technologies, particularly those involved with animal-rearing and food production, are rarely considered in the same breath as pynotechnologies, despite their often global impact.

Without doing away with narrative approaches altogether, we can nonetheless benefit from a more complex and thorough handling of the archaeology of technology, which acknowledges the diversity of past practices and leads us to a closer understanding of where and how the material and the social worlds meet.

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**TH3-08 Abstract 02**

**Embracing variability as a mode of analysis**

**Author:** Dr. Kohring, Sheila, University of Cambridge, Cambridge, United Kingdom (Presenting author)

**Keywords:** chain of operations, improvisation, pottery

**Presentation Preference - Oral**

Archaeology excels at locating patterns in the distribution of material culture and interpreting the behavioural practices associated with these artefacts. However, in order to do this, we are often required to homogenise data towards 'norms' that fit macro-scale narratives about prehistoric lifeways. Often the variability underlying the complexity of social networks is ignored when, in fact, it could provide insight into the dynamics of how change at the macro-scale occurs. This paper explores how analysis of technical variability can be beneficial in assessing how knowledge is networked within communities and how it articulates with wider social and technological traditions. In particular, it uses Late Neolithic, Copper Age and Early Bronze Age pottery technology to assess how the analysis of variability (rather than the lack of variability) opens up questions on how social change occurs and becomes sedimented within local communities.

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**TH3-08 Abstract 03**

**Documenting the microscale of pottery technology in large samples**

**Author:** PhD candidate Papaoannou, Anna, Aristotle University Thessaloniki, Thessaloniki, Greece (Presenting author)

**Co-author(s):** Kotsakis, Kostas, Aristotle University Thessaloniki, Thessaloniki, Greece

**Co-author(s):** Urem-Kotsou, Dukia, Demokritos University of Thrace, Komotini, Greece

**Keywords:** forming techniques, Neolithic technology, pottery

**Presentation Preference - Oral**

Regarding the formation 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 Gouten and Rooditsa Palembalvi, which are dated at 6430-5670 and 6220-5900 BC respectively. The techniques are studied macroscopically, based on attributes of the vessels' surface, section and fracture that are considered diagnostic traits of the different primary shaping practices. The aim is to explore the vessels' building in detail within the pottery assemblage of each settlement and to compare the techniques used by the potters of the two sites. The technological traits will be compared to the common typologies of pottery based on vessel form and ware.

The study so far has shown the variability within and between the sites in the microscale of performing the basic forming techniques, but also the common practices used in the neighbouring sites. So, the focus on the details of the shaping techniques gives us insight into the communities, enriches our understanding of the Neolithic potters and their practical knowledge, and points to a more complex picture of Neolithic technology.

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**TH3-08 Abstract 04**

**Lost and Found: The Complexity of Find Contexts and the Technology of Bracteate Breakage**

**Author:** Prof. Wicker, Nancy, University of Mississippi, Oxford, MS, United States of America (Presenting author)

**Keywords:** metal technology, Migration Period, Scandinavia

**Presentation Preference - Oral**

Find locations of Scandinavian Migration Period (5th- and 6th-century CE) gold pendants known as bracteates are typically identified as burials or hoards. One of the grand narratives of bracteate scholarship is that mapping the find contexts leads to obvious interpretations, with earlier hoard finds in southern Scandinavia and northern Germany, and later grave finds around the periphery of this area from the island of Gotland, to western Norway, England, Normandy, and across Central Europe. However, the distribution patterns are not immutable, and single finds of these objects outnumber the find locations (not the overall number of specimens) of those recovered from burials and hoards. Dracks in the tidy categorization of find contexts have been begun to appear. In England, where bracteates are typically found in graves, a hoard was recently discovered at Brimham in Norfolk. In addition, settlement excavations now complicate the picture. Some bracteates found in settlements may have been deposited purposefully, as in a posthole at Gudme, Denmark, while others may have been accidentally dropped.

In this paper, I examine the "little details" and the technology of single finds. I consider whether single finds should be regarded as (very) small hoards, too insignificant or too scattered for us to recognize as what we traditionally consider hoards, or whether they were simply dropped. Our definition of a hoard should take into account the possibility that a single object might be offered rashly 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 make it less likely to be deposited 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 in the grave. The technology of jewelry breakage – as well as the corollary of physical and emotional loss – has not been included as a part of the story of bracteates as scholars continue to focus on the dichotomy of graves and hoards. The little details incorporating the technology of manufacture and the agency of individuals confound the former simplicity of a grand narrative as we elaborate on our understanding of the past.
The paper starts from the premises that, most often, the ancient written sources were given less attention from the perspective of technical information they might provide. The details concerning the dating, geographic location and the correlation with already known historic events was considered essential and, unfortunately, most often insufficient. In addition, specialists capable to read in the original language the ancient sources might not have always been familiarized with the principles of ancient technology. Due to these causes, many of the stories concerning the beginnings of technology remained untold. We might have proof that a certain principle or method were applied, but we do not know HOW. Our presentation proposes a re-reading/re-analysis of the work *Expositio et Ratio omnium Formarum*, dating most probably from the first decade of the 2nd century AD, and preserved in fragmentary copies from the 6th and 9th centuries. Taking the shape of a letter written by a certain Balbus and addressed to a certain Celsus, the work contains numerous data of topographic nature, including the mentioning of certain military survey applications. These latter ones present a particular interest. For example, the determination of the widths of a river that had to be crossed or the height of a fortification that had to be conquered “without venturing within bowshot of the enemy” (M.J.T. Lewis) led to the development of ingenious methods. Although the volume is often cited, the accent on the politico-military conjecture prevailed, to the detriment of the technical information it provided, which was neglected. Our presentation will analyze exactly these neglected aspects. We will approach Balbus’ text at three interrelated levels. Firstly, we will try synthesis all the mathematical knowledge that Balbus possessed at the time. Then, strictly based on these, we will try to reconstruct the methods and, implicitly, the instruments that might have allowed the performance of the three military survey applications that Balbus mentioned in the text. The reconstitution of the methods and instruments will be integrated in the historical context of the original text, by evoking a contemporary personality, that of Heron of Alexandria, which brought numerous contributions to the technical field, including that of topographic measurements, with his paper *Dioptra*. Finally, we will try to discover more about the persons behind the analyzed text (Balbus and Celsus), who, most probably, were people outside the upper classes and the governing group which traditionally provided most of the evidence that comes from literature (Brian Campbell 1996).

**Keywords:** geto-dacian coins, silver, tin

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**TH3-08 Abstract 06**

Tin presence in Geto-Dacian silver coins as revealed by XRF and micro-PIXE – a possible explanation

**Author:** Dr. Constantinescu, Bogdan, National Institute for Nuclear Physics and Engineering, Magurele-Buc, Romania (Presenting author)

**Keywords:** geto-dacian coins, silver, tin

Presentation Preference – Oral

Geto-Dacian silver coinage – *Celtic* type starting with Philip II tetradrachm imitations – is active from end of 5th to beginning of 1st Centuries B.C. A spectacular aspect is the presence of tin in these coins starting with 1st Century B.C. It is logic to suppose that tin was deliberately and gradually introduced. The average fineness and the average weight of the issues corroborate the supposition. There is a reduction of the fineness with the time that is specific to almost every Geto-Dacian coin issue. Tin concentration in coin increased with the time - at the beginning of 1st Century B.C. It was more or less proportionally to copper concentration. This could suggest that tin was introduced in coin 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 reported in fragments of tin and silver monnayages cuivreux du Centre-Ouest de la Gaule avant la conquête - 2002, PhD thesis, Université Paris-Sorbonne - coins from 1st Century B.C. emitted by Coriosolit having Ag>24%, Cu=66%, Sn=9%, Au=0.1%, P=0.5% (medium values), in M.F. Guerra and Ph. Abollivier, “Monetary alloys in Iron Age Armorica: the singular case of the Dauma tribe” - Ag>60%, Cu=28%, Sn=10%, Au=0.2%, P=0.7% and in J. Corsi et al. , *Compositions and a historical analysis of collation of Claséine Gaul’s coins kept at the Hungarian National Museum*, J. Anal. Spectrom, 2015, 30, 730-737 Ag>32%, Cu=66%, 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 “melting” explanation related to 279 B.C Celtic Delphi defeat is discussed.

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**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 chemical and archaeology, around 100,000 artefacts from the European Bronze Age have now been investigated. These composition sets are typically interpreted through the lens of “grand narratives” - the provenance hypothesis, a broad sequence of alloys, statistically lumping analyses into groups, or simplistic routes of exchange. These schemes are increasingly at odds with current archaeological concerns such as the fine-scale performance of identity, value, and the agency of individual people and objects.

The grand narratives are beginning to become strained from a chemical perspective as well. Recent research at the University of Oxford has emphasised the subtle variations in chemical composition caused by a unit of metal’s unique life story. Quants of metal can pass through a number of forms, merge with others, be reworked, used, and decorated over time. Many of these processes will leave chemical and isotopic marks that can be interpreted by comparison with contemporary artefacts. In short we are aiming to develop a system of relative chemical interpretation for copper-alloys. This paper will give a series of case studies where a fresh look at old data can reveal individual technological and social stories, within the broad sweep of European Early Bronze Age metal use. These include individual workshop choices, rare chemical signatures that demonstrate the production of small axes from recycled daggers in England, and strange local patterns that were caused by melting and recasting centuries old metal in the south of Ireland.

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**TH3-08 Abstract 08**

A more efficient means for going backward?

**Author:** Dr. Fothergill, Tyg, University of Leicester, Leicester, United Kingdom (Presenting author)

**Keywords:** Animal husbandry, Technology, Theory

Presentation Preference – Oral

Theoretical examinations of relationships between human and non-human animals in the past are few and far between. There is a clear scholarly focus on concepts such as “exploitation” of species, “disposal” of remains, and a generally uniform approach to domestication. Past animal husbandry is broadly viewed as a component of agriculture, and conceptualised as temporally progressive, ever approaching an ideal economically-efficient means of production. When a trend in quantitative data fails to follow this model (as an example: a decrease in the size of cattle in Britain after the 5th century AD) it is relatively investigated and cultural factors may be implicated (e.g. Roman withdrawal from Britain). Whilst such factors may be partly responsible, certain lines of archaeozoological evidence (sex ratios, mortality profiles, metrics) are employed to draw conclusions about activities and practices undertaken by a range of practitioners across a large and varied social landscape. It is more likely that cattle became smaller after the Romans left Britain because the Britons lacked the knowledge and skills to husband them in the most productive way, or that indigenous cattle breeders simply lacked the resources and connections to a network which had been available to them during the Roman occupation? Could there be other factors at work? Such questions cannot be addressed in a comprehensive and nuanced manner by comparing a few strands of quantitative data, and a more flexible theoretical approach is warranted. Technology has been part of the toolkit of archaeological thought for centuries, and does not merely equate to tool use. Manufacturing practices which leave a clear archaeological signature are recognised as technologies. Animal husbandry is no different in that it is a continuous process, a work of creation and amendment over time, which is subject to alterations in knowledge, skills, and practice. Approaching the idea of animal husbandry as a technology would allow for: the incorporation of multiple strands of evidence at different scales; a recognition of an array of activities as part of practical processes; inclusion of symbolic and ritual contexts such as gender, status, and identity; animals to be considered as potentially agency; and the tantalising prospect of examining the dissemination of animal husbandry knowledge through systems of human networks.

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Theoretical and methodological perspectives in archaeology

Archaeology has been used as part of the History about the national state. Still today this story is being retold, many times uncritically. At the same time we as archaeologist must admit that we also often retell the big linear story. A mound is given higher priority than smaller more insignificant graves, a settlement area with longhouses more than a site with cooking pits but no postholes. By systematically choosing not to excavate peripheral sites, small sites, and temporarily used sites we create a history of central places and big men. This is an undemocratic way of conducting archaeology.

We propose a democratic archaeology, regarding methods, sites and people. In our scientific research programme we design and execute archaeological and methodological studies 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 Tanur 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 geochronological analyses, mainly phosphate, magnetic susceptibility, loss of ignition and lipid acids. These samples were supplemented by samples for macrofossil and radicarbon dating. The ratio between large and small fire-cracked stones were calculated.

By combining these analytical methods we can conclude that cooking pits are complex structures. The cooking pits on the site could be subdivided into three categories, of which one were used for processing grain. By combining these results with a landscape analysis, including other settlement sites, place names and natural preconditions, we could interpretate the site as an activity area used for the processing of grain.

The site can be interpreted as a peripheral site (now and then) but important for the society. Peripheral sites are also sites beyond control. In such a place can, for example, subversive thoughts and discussions be performed. This is sites were 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.

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TH3-08 Abstract 09

Digging democracy

Author - Szwedberg, Stig, Kulturlandskapet, Fältbacka, Sweden (Presenting author)
Co-author(s) - Olsrud, Aninka, Kulturlandskapet, Fältbacka, Sweden
Keywords: Cooking pits, Environmental archaeology, Sample strategies
Presentation Preference - Oral

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) - Dr. Dietrich, Laura, German Archaeological Institute, Frankfurt am Main, Germany (Presenting author)
Keywords: Göbekli Tepe, Neolithic, Social cohesion
Presentation Preference - Oral

Presentation Preference

Regular session

TH3-09 Abstract 02

Assessing food sharing and social cohesion in the Neolithic of the Levant

Author - Dr. Dietrich, Laura, German Archaeological Institute, Frankfurt am Main, Germany (Presenting author)
Co-author(s) - Dr. Dietrich, Laura, German Archaeological Institute, Frankfurt am Main, Germany
Keywords: Levant, Neolithic, Social cohesion
Presentation Preference - Oral

Presentation Preference

Oral

TH3-09 Abstract 03

Communities united: Linking Archaeological Record and Conceptual Approaches on Social Cohesion

Friday, 2 September 2016, 09:00-18:00
Faculty of History, Room 331

Author - Dietrich, Laura, German Archaeological Institute, Berlin, Germany (Presenting author)
Co-author(s) - Dr. Dietrich, Laura, German Archaeological Institute, Archeologisk Arkivet, Vrije Universiteit, Lithuania
Keywords: Bronze Age, Neolithic, Social cohesion
Presentation Preference - Regular session
Late Neolithic settlement of Stir, Syria. The settlement was extensively excavated by the German Archaeological Institute and represents one of the few explored sites of this period in the Northern Levant. It has a rich stratigraphic sequence which covers nearly a thousand years. So-called individual single room houses consist of 'special' multiple-room buildings, singular grinding equipment with whole sets for 'collective' food processing, and isolated vessels with large storage rooms or buildings. The chronological sequence of the architecture and the contexts and evolution of grinding stones suggest a transition from individual to communal consumption and a possible coexistence of social behaviors related to food consumption. Furthermore, the very early production and use of pottery accentuates these processes.

TH3-09 Abstract 03

Review of social structure in the Late Neolithic through the ritual activities and related materials

Author: Dr. Erdem, Deniz, Middle East Technical University, Ankara, Turkey (Presenting author)

Keywords: Late Neolithic, Ritual, Social structure

Presentation Preference: Oral

The Late Neolithic Period is named Haial Period in North Mesopotamia (8000-5200 BC) and it falls between the Neolithic Transition (c.10500-7000 BC), and the Urban Transition (c.4000-2500 BC). Therefore, the time period is traditionally perceived as an important stage in the evolution of central authority and ritual and economic centralization that was the hallmark of the first city-states. The architectural structure and regional settlement patterns usually indicate a non-hierarchical organization that appears to be centered upon extended-households related through kin relations. Yet, it has been difficult to understand how these extended-household groups regulated their social relationships with other groups.

Within an alternative theoretical approach, this study reviews the space-object-person relations of the time period through analysis of the material culture, related ritual activity and settlement patterns in an attempt to draw a picture of social trends during that period. Following this, the significance of ritual activity is evaluated in context of these trends to understand the patterns of social change. At the same time, ritualized burial of artifacts, places and buildings may be a factor that prevents 'alienation of objects' and thus accumulation of personal or group capital. Such perceptions may have also been instrumental in the emergence of new alternatives for recording and manipulating social history.

TH3-09 Abstract 04

Food preparation, commensality and the formation of social cohesion in Late Neolithic Northern Greece

Author: - Lymperaki, Maria, Democritus University of Thrace, Eleftheroupoli Kavalas, Greece (Presenting author)

Keywords: - Co-author(s) - Co-author(s) - Co-author(s)

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, Staraucopolii (Thessaloniki) and Toumba Kremasti (Kozani). Focused on the typological characteristics of cooking pots, namely their size and shape, in combination with the evidence of cooking facilities it is possible to define more clearly some close connections between groups or ‘households’. The use of cooking pots in Staraucopolii provide evidence for domestic production and consumption of food while in Toumba Kremasti Kozani the context of consumption of food must have been on a more public level. Subtle differences and similarities between houses 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.

TH3-09 Abstract 05

Social cohesion among Tripoloi populations: evidence versus hypotheses

Author: - Dr. Diachenko, Aleksandr, Institute of Archaeology of the NAS of Ukraine, Kyiv, Ukraine (Presenting author)

Keywords: Settlement hierarchy, social cohesion, settlement structure, household

Presentation Preference: Oral

This paper examines the evidence and hypotheses regarding social cohesion among Tripoloi populations, discussing social interactions at the following spatial tiers: house and household, settlement, micro-region, region and supra-region. In this respect emphasis is placed upon Tripoloi site hierarchies and settlement structures.

TH3-09 Abstract 06

The importance of collective aspects in megalith building in Neolithic Europe and recent Indonesia

Author: - Wunderlich, Maria, Christian-Albrechts University Kiel, Kiel, Germany (Presenting author)

Keywords: Funnel-Beaker, Megalith building, Social Cohesion

Presentation Preference: Oral

One challenge of research connected to megalithic monuments is the inclusion of the concept of social cohesion into the social interpretation of given examples of the 4th and 3rd Millennium B.C. throughout different parts of Europe. Funnel-Beaker societies in Northern-Central Europe are providing a rich base of megalithic tombs, with a number of several thousand monuments built in the modern areas of Germany, the Netherlands, Denmark and Sweden. Megalith building traditions can be found in a number of archaeological, historic and recent societies scattered over Europe, South America, Asia and Africa. One of the last remaining places with a recent tradition of megalith construction is the island of Sumba in Indonesia. This ethnographic case study shows how collective efforts in building practices are shaped by and vice versa influence the social structure of communities. In this regard, also feasts play an important role. While there are mostly no social restrictions in the access to grave types, the distribution of graves and of their size show some clear patterning. Besides the ethnographic case study and the archaeological test region in South-Eastern Schleswig-Holstein and North-Western Mecklenburg-Vorpommern suggest, that collective efforts are very important in monument construction. Based on the grave sizes, the required amounts and resources (e.g. workforce) for building might have been extremely high. Depending on the population of the settlements, cooperation between different settlements or communities must be seen as an important factor. An active use of such monuments for the display of status and economic success of individuals and a group as a whole are reasonable and important aspects. Possible principles of megalith building and the mechanism influencing it are analyzed with regard to the collective character, which is reflected by different aspects of this specific tradition. The high economic expenditure, the ongoing relevance to the monuments in connection with feasting activities and collective aspects indicate importance in the preservation of a felt sense of group membership and community structures.

TH3-09 Abstract 07

The Boyne Valley, eastern Ireland – the epicentre of a Neolithic ‘super-ordinate’ identity?

Author: - McNleigh, Thor, NIU Galway, Galway, Ireland (Presenting author)

Keywords: - Co-author(s) - Co-author(s)

Presentation Preference: Oral

This paper explores the importance of the Boyne Valley Co. Meath, eastern Ireland in the construction and negotiation of group identities in the late-4th and mid-3rd millennium BC. The construction of substantial passage tombs at Dowth, Knowth and Newgrange indicates the potential significance of the Boyne Valley in the conception and mediation of large-group identities during the Middle Neolithic. It will be advanced that the sources of materials utilized in the construction of these monuments and the distribution of contemporary sites across eastern Ireland provide information about the scale and geographical extent of the groups involved in these construction projects in the later 4th millennium BC. The act of building will be considered from the perspective of strengthening group cohesiveness prior to the occurrence of large-scale gatherings at calendrically significant times of year. Evidence for Late Neolithic Grooved Ware associated feasting at Newgrange confirms the continued significance of the Boyne Valley in the constitution of large-scale group identities during the mid-3rd millennium BC. An overview of evidence supporting the theory that large-scale winter solstice associated feasting took place at the site will be presented. A working hypothesis about the phasing of the activity will be outlined and estimation of the numbers involved in feasting at the site will be advanced. The significance of different scales of feasting event will be considered, and finally, the importance of calendrically scheduled winter solstice gatherings in the reinforcement of group identities will be discussed.
TH3-09 Abstract 08

Building and Burning Together to Stay Together

Author - Prof. Miller Bonney, Emily, California State University Fullerton, Long Beach, United States of America (Presenting author)
Keywords: collective, Crete, tomb
Presentation Preference - Oral

This paper argues that the construction of collective tombs at the beginning of the Bronze Age on Crete constitutes an example of building and burning to affect social cohesion. At the end of the Neolithic the early population of Crete dispersed across the island, yet evidence for durable settlements datable to this period, with the exception of the major sites of Knossos and Phaistos, remains scant. Rather than the social cohesion of these clusters of people was provided 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 cooperation 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 where the holes were caved - and particularly to the south central part of the island - the settlers recalled 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, too -- three to two pieces of pottery and perhaps a personal item - and the overall impression is that the mortuary practices were intended to bind the community together. There is no evidence in these early tombs for any individual receiving special attention. Instead it appears that every member of the group received the same treatment at the time of internment - deposition on the ground accompanied by a few objects. Bodies piled up over time, the descant remained 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 supplanted these tombs as an important mechanism for social cohesion.

TH3-09 Abstract 09

Looking for a spa? A social cohesion at Santovka – case study

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Keywords: religion, Slovakia, springs
Presentation Preference - Oral

Santovka (formerly known as Magdorcse) is an Early Bronze Age - late type settlement at southwest Slovakia. It is surrounded by thermal springs which are famous for their sulphurous qualities. An ongoing excavation project (currently 8 excavation seasons) uncovered a medium-sized fortified site, with exceptionally high number of prestigious artifacts of exotic origin and clear evidence of extensive metalworking activities. Ceramic production and consumption is pretty much heterogeneous, with predominant elements of so-called matavecz, encrusted ware and otonti ceramic traditions. The character of uncovered finds as well as geographical position of the site suggests, that Santovka was a place, where identities were able to merge, transform as well as maintain their distinctive character. These processes were obviously dependent of proper social cohesion. We therefore welcome the topic of this paper, because we believe, that Santovka offers a nice example of a site, where theoretical models related to subject of social cohesion could be studied and applied. We suggest, that local thermal springs were a natural place to keep alive these associations.

TH3-09 Abstract 10

Collective harvesting at Százhalmobatta-Földvár, Central Hungary: a material cultural perspective

Author - Halbrucker, Éva, Leiden University, Delft, Netherlands (Presenting author)
Keywords: Bronze Age Hungary, harvesting, sickle blades, chieftain, power-centre, collective activity, social relations
Presentation Preference - Oral

Investigating the sickle blades of Százhalmobatta-Földvár yields information on social relations as they show harvesting to be a communal activity, carried out in the power-centre of the Bronze Age chieftain of the Benta valley.

Százhalmobatta-Földvár, Central Hungary is a Bronze Age tell-settlement along the lower Benta river. The delta of Benta river, Bronze Age Hungary is the period between 2800-2700 BC and 800 BC. From this period, Százhalmobatta represent 2000-1400 BC. This archaeological site has important role in the research of Bronze Age Hungary – and abroad. The excavation of the site and monumentsřı̈ shows that the Bronze Age fortified settlement was carried out within the framework of an international programme that was set up in order to examine the differences, similarities and connections between three different regions of Bronze Age Europe. Százhalmobatta-Földvár, due to its size and geographical position, can be considered the head of the Bronze Age chieftain in the Benta valley, according to the model proposed by Eske and Kristiansen (2015). 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 with each site. Hence, instead of political differences, they might be economical.

Sickle blades are common finds at the site of Százhalmobatta-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 reasonably rare finds in other Bronze Age sites from the valley (Priskin 2014). This information suggests harvest was a centralised communal activity controlled by Százhalmobatta-Földvár. Thereby, harvesting (and sickles) could have been organised among social relations, and could help to keep alive these associations.

TH3-09 Abstract 11

Social cohesion and social disintegration in Bronze Age Italy

Author - Dr. Varnatti, Alessandro, Università di Roma “La Sapienza”, Roma, Italy (Presenting author)
Co-author(s) - Dr. Renzoni, Andrea, CSR - ISMA, Rome, Italy
Keywords: Bronze Age Italy, social cohesion, social disintegration
Presentation Preference - Oral

The studies on Bronze Age Italy have underlined the existence of differences in the apparent social homogeneity of communities. The terramara society has been singled out as an example of social cohesion and homogeneity, thanks to its regular settlement pattern and repetitiveness of house sizes, but also to its “isonomic” funerary representation and to the widespread infrastructure investment in water channels and fields, as well as in material culture. On the contrary, Southern Italian communities have been described as more hierarchical and socially divided communities, exposed to the Mediterranean wind of inequality coming from the Aegean and the East.

Anyway, the patterns of social disintegration in reaction to the Late Bronze Age crisis show that the collapse of the terramara system was more radical and extreme than the limited rearrangement suffered by the Southern Italian societies.

It can be suggested that solidarity, identity and cohesion are indeed patterns linked to dynamic structures of power, strongly relying on a non-contradictory expression of power, which likely has its strength in a fantastical structure of power.

Anyway, it is also interesting to reconstruct this view of (ancient) societies, in order to understand how far our research traditions have fossilized our understanding of the past.

TH3-09 Abstract 12

Take an image, it’ll last longer: Mycenaean multimedality, prestige, and competitive conformity

Author - Thaler, Ulrich, German Archaeological Institute, Athens, Greece (Presenting author)
Presentation Preference - Oral

The inherently, literally built-in segevite nature of Mycenaean palaces as the seats of political authority and the role of palatially sponsored feasts, held amongst others at the palace itself, as a means of creating a shared identity and thus fostering social cohesion have been key topics of Mycenaean archaeology for the past two decades. The proposed paper seeks to further highlight the link between creating a common identity and promoting cohesion in the sense of conformity. Beyond ‘making Mycenaeans’, as it has been put, how could the palace then make those Mycenaeans fall in line, i.e. bind them to itself and its agenda? Establishing a prestige discourse in which the palace was both the yardstick to gauge one’s standing and the provider of the means to enhance it is suggested as a possible key strategy, ideologically leading, from the palace’s perspective, to what might be termed a ‘competitive conformity’ of the ruled. Following a discussion of the nature of prestige, potential visual mementos of every organisation by and/or associated with the palace are sought as possible correlates, i.e. physical archaeological evidence, of such a palace-fostered discourse. Specific attention is paid to such potential mementos which transpose iconographic themes closely associated with the socially exclusive architectural setting of the palace itself, e.g. themes in the canons of palatial wall-paintings, into different media and media of different degrees of exclusiveness. Possible case studies include drinking vessels, chariot and hunting iconography as well as depictions of anthropoidal felines and griffins.
Ritual feasting as indication of social cohesion?
A late Bronze Age case study from Romania

Author - Prof. Dr. Metzner-Nebelsick, Carola, LMU Munich, Munich, Germany (Presenting author)
Co-author(s) - Prof. Dr. Nebelsick, Louis, Karolín Stefan Wyszynski University, Warsaw, Poland

Keywords: ritual, feasting, Bronze Age, cohesion, competition

Presentation Preference - Oral

The talk will focus on ritual feasting in the late Bronze Age site of Lapus in Northwest Romania. As a result of an international excavation and research project (Chair for Pre- and Protohistory, LMU Munich, Germany; Maramures County Museum in Bâia Mare, RO; Archaeological Institute, Karolín Stefan Wyszynski University Warsaw, PL) a monumental, multi-period cult building was uncovered. In each phase a large hall with a central hearth was deliberately destroyed by fire after a period of use and subsequently covered with a clay mantel, on top of which the next hall was erected. Outside those buildings large quantities of pottery vessels of various functions - ranging from storage vessels to delicate cups - have been found. We interpret them as the remains of feasting events of a larger group of people. In accordance with the common interpretation of feasting like creating group identity and cohesion within society we also see oppositional aspects represented in Lapus. As a result of excavations in the past and recent surveys within the project several contemporary or supposedly contemporary barrows with traces of comparable structures were detected. Thus ritual feasting in Lapus may also have functioned as means of competition among different families and an indicator of social distinction and a display of wealth and power.

The paper will address aspects of ritual behaviour on a theoretical as well as evidence based level.

Do swords make warriors? Identity & cohesion among armed individuals in the European Bronze Age

Author - Nöroff, 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, albeit 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) diverse 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 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.

Social cohesiveness as concept of habitus through the lens of archaeological record

Author - Pape, Eleneore, 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 as different levels, expressed though distinctive sets of material culture and features. Our experimental approach shall be applied to various case studies of the 3rd millennium BC in Europe from a cross-border macro-level to a multitude of local micro-scale units.
strong oral histories and practices designed to prolong the memory of successive generations of inhabitants of these buildings. As such, the houses themselves (their fabric and their spatial organisation) appear to have been central to the construction, maintenance and renegotiation of household identity in later prehistoric Europe, as glimpsed through various ethnographic examples in the more recent past.

TH3-10 Abstract 03

Household Archaeology in a small scale house in an early byzantine settlement

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

Keywords: Byzantium, Excavation, Household

Presentation Preference - Oral

The early byzantine settlement of Ćačiņ Grad in southern Serbia can be identified with the imperial city Lutiniana Prima known from De Aedificii ofProcopius which existed for merely 90 years. Without any marks of earlier or later occupation, the excavations provide unique examples in the early Byzantine period. Excavations in Ćačiņ 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 fulfilled in the settlement. Taking their perspective on the settlement raises the question of their mentality and their everyday life. The household can be seen as the place where social roles are negotiated and as a social landscape which reflects the mentality of the dwellers. The analysis of installations and furnishing of the domestic activities carried out in daily routine and how the domestic space may be used. The observation which things were left behind or even don’t appear in the archaeological record allows statements about the end of occupation. Life in Ćačiņ Grad took place in a time of far reaching cultural change. Written sources provide little insights in the situation of common life. In combination with the archaeological record they allow to delineate the possibilities of household- organisation for a specific historical situation.

The talk will examine if it is generally possible to work with the household concept if there are unspecific structures or if it is rather necessary to apply it to gain more information. With regard to cultural formation processes this also raises the issue of the possibility to detect pauperism archaeologically. For this purpose it will present the archaeological remains of a specific small house and compare it with the normal course of life in early Byzantium known from historic tradition.

TH3-10 Abstract 04

Pottery as personal belonging in a Clarisses convent in Vilnius

Author - PhD student Urbanaitė-Ubiš, Miglė, Klajpeda University, Klajpeda, Lithuania (Presenting author)

Keywords: historic archaeology, household, pottery

Presentation Preference - Oral

Pottery is the most common artefact in excavations of historic sites. Due to vast number of fragments pottery is often identified as mass artefact. Nevertheless, some early modern period pottery in Europe can be associated with personal needs and usage. Pottery with scratched marks such as initials, religious abbreviations, letters or numbers or unidentified scratches are found from f. example from 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 runs and monks possessed their own ceramic dishes while in most cases private property was forbidden. In a convent of Clarisses in Vilnius Old Town (Maironio street 11) 10 fragments of marked ceramic dishes from the end of 17th to beginning of 18th century were uncovered during the excavations in 1994 and 2007. These dishes had only marks of letters 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 may be interpreted as personal belongings. Dishes could be used for personal hygiene rituals or as a prevention of infectious diseases. There is also a possibility that some nuns had their specific diet requirements and some of the dishes could have been used for serving them food.

TH3-10 Abstract 05

House and Household – an archaeological approach

Author - PhD Tagesson, Göran, Swedish National Museums, Linköping, Sweden (Presenting author)

Keywords: early modern period, household, houses

Presentation Preference - Oral

The household is commonly identified as a fundamental element of social organization in past times. In archaeology, the household has often been regarded as an essential level of research, in order to bridge the gap between grand theories of cultural change and the practical archaeology on the ground. Theoretical discussions as well as analyses based on empirical observations now tend to take place in dynamic intersections where the household as a whole is considered, and sometimes even as something much different from a specific social structure. New approaches tend to combine social organization and agency with spatial and material dimensions. The household as a unit for organizing property, production and consumption is confronted with the household as ideology, discourse and manifestation. The relationship between the physical house and the household as a social unit is no longer evident and has to be discussed.

In my paper I will discuss the possibilities to combine a vast bulk of archaeologically documented urban buildings from the 17th and 18th centuries in Kalmar, Jönköping and Linköping with detailed accounts of the households, the owners and the tenants. The relations between the households will be analysed 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 this paper, I propose a critical examination of the archaeological archive. Using my personal experience as an archaeologist working in the archives at the Museum of Cultural History in Oslo as a point of departure and a case study, I intend to explore the concept of the archaeological archive from two different angles:

1. In archaeological research, archival contacts are always being interpreted with a conscious and reflective view on past research paradigms and history of science. Archaeological practice however, is very rarely subject to the same meta-archaeological scrutiny. Nevertheless, archaeological archives are historical artefacts with complex conditions of production, which, in the same way that archaeological artefacts can be read and interpreted as remnants from prehistory, can be read and interpreted, both as a historical source for the context and provenience of archaeological artefacts, as well as remnants of the theoretical and societal circumstances and conditions that have, in different ways, influenced the archaeological processes.

2. What has happened and has not been documented and kept in the archaeological archives is a product of changing paradigms and selective memory, whether conscious or unconscious. Even so, because of the destruction and displacement caused by an archaeological excavation, the original documentation is the closest we will ever get to the original situation, and archaeological archives, in general, will offer a description of how and why it came into being. From the point of view of research, an archaeological archive will also be the least biased source of information, as every re-interpretation from previous research adds a new layer of preconceptions.

**TH3-11 Abstract 01**

**Archaeological archives – A deconstruction**

**Author:** Frydenberg, Hilde Sofie, Museum of Cultural History, University of Oslo, Oslo, Norway (Presenting author)

**Keywords:** archaeological archives, archival processes, theory of science and methodology

**Presentation Preference:** Oral

In this paper, I propose a critical examination of the archaeological archive. Using my personal experience as an archaeologist working in the archives at the Museum of Cultural History in Oslo as a point of departure and a case study, I intend to explore the concept of the archaeological archive from two different angles:

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In this paper I want to develop a very simple linear line of thought about the significance of the archives and archaeological documentation. In one of his papers James Deetz proposed that archaeological documentation, field reports and similar works should be treated as archaeography seeing that they stand in a similar relation to archaeology as ethnography does to ethnology. One could propose that this is not invalid and claim that archaeography, description of the artifacts, and not the artifact itself is the source of archaeological research. During fieldworks artifacts are collected, measured, described and interpreted, and only the result of this process and not the excavated object could be called an archaeological source. Site and artifact documentation published in various reports and papers is then applied to other papers and the process is repeated indefinitely. Adopting this notion should switch scientific attention to the archives as they hold not only the aforementioned sources, but also artifacts-objects, and thus they provide the only context for reconstructing excavation process and reference point for the discourse. The nature of archaeological site allows full contact with the artifacts in its context, but as a price of being confined to the excavated area, so that the view upon explored culture or community is restricted only to the actual size of the site. Any additional information is obtained via archival sources, which makes properly maintained archives one of the most important factors for conducting studies. In my paper I will explore this inductive nature of the research by presenting the possibilities enabled by the introduction of joined archives for Greek painted pottery. Focusing on their main features like standardization of documentation, accessibility and others I will discuss benefits and drawbacks of archive-based research.

In present-day archaeological fieldwork, a preliminary phase devoted to solid archival study is increasingly gaining an important role. Nevertheless, archival research has not yet become a “best practice” in archaeological fieldwork. This paper will highlight the importance of archives in archaeological fieldwork, both for reconstructing the history of an archaeological site, as well as for directing excavations and research properly. It is also essential to underline the importance of combining information provided by several archives of different types (cartographic, documentary, photographic), which, mostly and originally, were part of unique archives, dismembered and reassembled into other archives, at later times. The importance of archives will be illustrated by means of the case study of Veleva, a Roman settlement located in the northwestern part of Italy. The site was discovered in 1974, when pieces of the famous Tabula Alimentaria Veleviae 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 archeological 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 Veleva more attractive to tourists. Those interventions were conducted in a highly ideological way and transformed the site, in many cases without allowing for the possibility of detecting those changes. In these, cases archives are fundamental to accurate reconstruction of the history of the monuments and the changes they have undergone, as well as to proper planning of archaeological research and interpretation of data. Two examples of these will be found in Veleva, where deep archival study has long been neglected, leading to incorrect interpretations of archeological 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 Veleva.

In my paper I will explore this inductive nature of the research by presenting the possibilities enabled by the introduction of joined archives for Greek painted pottery. Focusing on their main features like standardization of documentation, accessibility and others I will discuss benefits and drawbacks of archive-based research.

Following historians of science, Nathan Schlanger has argued that, “To reach the science in the making as much as the applauded result, grasp the quotidian as much as the extraordinary, historians of archaeology need to turn to... the archives of the discipline” (2004: 166). Archives, more than published results contain the traces of scientific practices – of course, they are, overlap between archaeology and the archive – practical considerations of what archaeology might bring to the archive have been promoted by local tourism authorities, in order to make Veleva more attractive to tourists. Those interventions were conducted in a highly ideological way and transformed the site, in many cases without allowing for the possibility of detecting those changes. In these, cases archives are fundamental to accurate reconstruction of the history of the monuments and the changes they have undergone, as well as to proper planning of archaeological research and interpretation of data. Two examples of these will be found in Veleva, where deep archival study has long been neglected, leading to incorrect interpretations of archeological 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 Veleva.

In present-day archaeological fieldwork, a preliminary phase devoted to solid archival study is increasingly gaining an important role. Nevertheless, archival research has not yet become a “best practice” in archaeological fieldwork. This paper will highlight the importance of archives in archaeological fieldwork, both for reconstructing the history of an archaeological site, as well as for directing excavations and research properly. It is also essential to underline the importance of combining information provided by several archives of different types (cartographic, documentary, photographic), which, mostly and originally, were part of unique archives, dismembered and reassembled into other archives, at later times. The importance of archives will be illustrated by means of the case study of Veleva, a Roman settlement located in the northwestern part of Italy. The site was discovered in 1974, when pieces of the famous Tabula Alimentaria Veleviae 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 archaological 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 Veleva more attractive to tourists. Those interventions were conducted in a highly ideological way and transformed the site, in many cases without allowing for the possibility of detecting those changes. In these, cases archives are fundamental to accurate reconstruction of the history of the monuments and the changes they have undergone, as well as to proper planning of archaeological research and interpretation of data. Two examples of these will be found in Veleva, where deep archival study has long been neglected, leading to incorrect interpretations of archeological 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 Veleva.

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Albeit Cyrenaica, being one of the prominent regions of the Greco-Roman civilization, attracted the attention of scholars from the medieval period onwards, its political isolation after the Arab and later, Ottoman conquest, gave reason to the visible delay in archaeological recognition of this area. Europeans could not visit it before the 18th century and, even in the 19th century, travels were still not numerous. Nevertheless, the travelers’ accounts, only partially published, constitute an invaluable source for the research on history of archaeology. They reflect the increasing knowledge of the region and, at the same time, illustrate the archaeology in transition from its pre-scientific to the scientific stage. The first topographical identifications were successively complemented by descriptions of the undertaken excavations and considerations about the ancient art. The history of discovering Cyrenaica enables us to capture and follow significant stages in the evolution of archaeological interests, pursued by scholars active both on the sites and behind their desks. However, this story could not be fully understandable 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 objects of archaeological excursions were to be seen as a tool to justify an expansion in North Africa and the Middle East, on the other hand – the results of archaeological exploration: artefacts enriching museum collections, testified the prestige of the state. This political context can be reconstructed thanks to the archive queries of unpublished documents kept in various state institutions. Since those documents reveal valuable information about uncovering activities, their studies create an excellent starting point for further sociopolitical reflections not only on archaeology. The aim of this paper is to show several advantages of adopting different approaches to studying archive records in the British Museum and Musée du Louvre. Analysis of letters, notes about monuments, reports, minutes of the committee and other original papers allows making several observations concerning the development of archaeological methodologies. Apart from their obvious archaeological value, those documents also allow to reconstruct wider, political and social background of the journeys to Cyrenaica in the 18th and 19th centuries. Among the travelers, a special role was reserved for diplomats, for whom official activities created an opportunity to undertake their own research (e.g. Joseph Vattier de Bourville, George Dennis), and agents of the state institutions (e.g. Beechey brothers, Porcher and Smith). The support of the Admiralty or museums helped those travellers to fulfill both, scientific, as well as any other significant goals.

TH3-11 Abstract 09
Archaeology vs Archaeology: the case study of the building beneath Via di San Nicola de’ Cesarini, Rome
Author - Giuglianone, Andrea, Università di Venezia “Ca’ Foscari”, Rome, Italy (Presenting author)
Keywords: Archaeology, Classical Archaeology, Ancient Topography, Topography of Ancient Rome, Ancient Rome, History of Archaeology, Archives Data, Historical Archives, Roman Architecture, Campus Martius
Presentation Preference - Oral

In this paper, I will try to shed new light on the discovery of a building excavated during the 1920s and 1930s beneath Via di San Nicola de’ Cesarini, Rome, by means of both archival data and archaeological evidence. Surveying the historical archives of Rome (i.e., unpublished notes, drawings, tracings of brick stamps, and period photographs) allows for both a reconstruction of the appearance of the building at the moment of its discovery, as well as the dating of its phases. The old cadastre of the city, the Catasto Pio Gregoriano, and the Cabebo della fognature della città di Roma, a limited collection of plans and drawings of the ancient and modern drainage system of the city, are also invaluable tools for the completion of this task. Thanks to this work, it will be possible to reconstruct the building in all its phases and to attempt an identification of it, drawing a new and up-to-date archaeological map in order to facilitate future work on the surrounding area.

TH3-11 Abstract 10
Digging in Archives: Writing the Scientific Biography of Archaeologist Zsófia Torma
Author - PhD Candidate Coltfoan, Laura, Brukenthal National Museum, “Lucian Blaga” University of Sibiu, Sibiu, Romania (Presenting author)
Keywords: archival materials, scientific biography, Zsófia Torma
Presentation Preference - Oral

Zsófia Torma (1832–1899) was a Hungarian archaeologist who had a significant contribution to the development of prehistoric archaeology in nineteenth-century Transylvania, which was then part of the Austro-Hungarian Empire. She is most notably known for her research conducted at the prehistoric settlement of Turda-Luncani (Huonébarea County, Romania) which is one of the most important archaeological sites in today’s Romania, as well as for the international academic network that she developed through her vast scientific correspondence with well-known scholars of the time, such as Archibald Henry Sayce, Francis Haverfield, Johannes Ranke, and Albert Voss. After Zsófia Torma’s death, her activity was underestimated and ignored by most Romanian and Hungarian archaeologists for almost a century. However, the systematic excavations conducted at the site of Turda-Luncani between 1962 and 1998, as well as the preventive ones in 2011, have revealed the necessity of re-evaluating her archaeological activity and writing her scientific biography.

TH3-11 Abstract 11
Digging in the repository: finding the First World War in the University of Glasgow archives
Author - Dr. Novotny, Jennifer, University of Glasgow, Glasgow, United Kingdom (Presenting author)
Keywords: archives, First World War, supermodern
Presentation Preference - Oral

Archaeologists and archivists share a material focus; our disciplines deal with the tangible past, the physical manifestation of history through objects, documents, and sites. Furthermore, we are drawn to our work by the tantalising promise of the thrill of discovery, bringing to light knowledge that has been forgotten or neglected in intervening centuries. Thus, the collaboration of archaeologists and archivists for Glasgow University’s Great War centenary commemoration project seems a natural fit. This paper reflects upon the experience of being an archaeological and historian working in an archive, specifically examining the intersections of these two distinct but related practices while undertaking research into the First World War. Firstly, it highlights our roles as arbiters of the past. As Pierre Nora (1989: 10) observed in Lieux de Mémoire, ‘To interrogate a tradition, venerable though it may be, is no longer to pass it on intact’. As archaeologists and archivists, we largely accept the interventionist nature of our work – we know that we must necessarily change, reorder, or otherwise destroy the past in the process of investigating it and preserving it for the future; furthermore we try to acknowledge our biases, our subjectivity, and our modern viewpoints. How then do we approach a topic as big as the First World War and the challenges of 20th-century archaeology and archives? It is important that we, as archaeologists and archivists, are well placed to talk about a war of overwhelming materiality, the epilogue of González-Rubalcaba’s (2008, after Augé) supermodern era. How do we deal with the material legacy of the supermodern, as well as what Nora felt was a modern society gone ‘archive-mad’ where we immediately historicise the present? Archaeologically, the First World War leaves us with millions of spent shells, millions of broken bodies, kilometers of trenches. Likewise it generated an astonishing amount of clerical paperwork: forms in duplicate and triplicate, millions of records, all filed away, some of which survive today. Today we continue to archive the supermodern – the seemingly limitless digital files created every day that take up real-world physical space, not in kilometers of shelving, but in computer servers. As Glasgow University’s Great War project has seen, however, the bureaucratic records of everyday life - often times astounding in banality - are of real value to later scholars. By thinking archaeologically about these archives, this paper offers a look at how interdisciplinary collaboration can enrich and enhance research, while making us think critically about our work.

TH3-11 Abstract 12
Archives and shipwrecks in the Baltic
Author - PhD Student Alvik, Rikka, The National Board of Antiquities, Helsinki, Finland (Presenting author)
Keywords: archives, maritime archaeology, shipwrecks
Presentation Preference - Oral

The brackish waters of the Baltic hide thousands of shipwrecks from different eras. Most known wrecks of sailing vessels are from historical times and later than medieval. How can we compare and combine the sources from archives and archaeological data from shipwrecks to make their story complete and also scientifically valid? The brackish waters of the Baltic hide thousands of shipwrecks from different eras. Most known wrecks of sailing vessels are from historical times and later than medieval. How can we compare and combine the sources from archives and archaeological data from shipwrecks to make their story complete and also scientifically valid? The brackish waters of the Baltic hide thousands of shipwrecks from different eras. Most known wrecks of sailing vessels are from historical times and later than medieval. How can we compare and combine the sources from archives and archaeological data from shipwrecks to make their story complete and also scientifically valid? The brackish waters of the Baltic hide thousands of shipwrecks from different eras. Most known wrecks of sailing vessels are from historical times and later than medieval. How can we compare and combine the sources from archives and archaeological data from shipwrecks to make their story complete and also scientifically valid? The brackish waters of the Baltic hide thousands of shipwrecks from different eras. Most known wrecks of sailing vessels are from historical times and later than medieval. How can we compare and combine the sources from archives and archaeological data from shipwrecks to make their story complete and also scientifically valid? The brackish waters of the Baltic hide thousands of shipwrecks from different eras. Most known wrecks of sailing vessels are from historical times and later than medieval. How can we compare and combine the sources from archives and archaeological data from shipwrecks to make their story complete and also scientifically valid? The brackish waters of the Baltic hide thousands of shipwrecks from different eras. Most known wrecks of sailing vessels are from historical times and later than medieval. How can we compare and combine the sources from archives and archaeological data from shipwrecks to make their story complete and also scientifically valid? The brackish waters of the Baltic hide thousands of shipwrecks from different eras. Most known wrecks of sailing vessels are from historical times and later than medieval. How can we compare and combine the sources from archives and archaeological data from shipwrecks to make their story complete and also scientifically valid? The brackish waters of the Baltic hide thousands of shipwrecks from different eras. Most known wrecks of sailing vessels are from historical times and later than medieval. How can we compare and combine the sources from archives and archaeological data from shipwrecks to make their story complete and also scientifically valid? The brackish waters of the Baltic hide thousands of shipwrecks from different eras. Most known wrecks of sailing vessels are from historical times and later than medieval. How can we compare and combine the sources from archives and archaeological data from shipwrecks to make their story complete and also scientifically valid? The brackish waters of the Baltic hide thousands of shipwrecks from different eras. Most known wrecks of sailing vessels are from historical times and later than medieval. How can we compare and combine the sources from archives and archaeological data from shipwrecks to make their story complete and also scientifically valid? The brackish waters of the Baltic hide thousands of shipwrecks from different eras. Most known wrecks of sailing vessels are from historical times and later than medieval. How can we compare and combine the sources from archives and archaeological data from shipwrecks to make their story complete and also scientifically valid? The brackish waters of the Baltic hide thousands of shipwrecks from different eras. Most known wrecks of sailing vessels are from historical times and later than medieval. How can we compare and combine the sources from archives and archaeological data from shipwrecks to make their story complete and also scientifically valid?
to start the research in archives. Sometimes an archival source – a document like an accident report or an announcement in the newspaper – leads to a systematic search for a possible place of wreckage. As archaeologists, we must learn to read both the material culture and archival sources, which possibly relate to each other. In this paper, two cases from Finnish waters will be presented, which have both archaeological findings and written sources associated with them.

The first case is that of a remarkable medieval maritime accident with quite a lot of written documents telling its story. The possible site of the accident is in the brackish waters of the Gulf of Finland. How might we interpret the scattered pieces of a wreck in the area, and how might we reconstruct the accident from the late 15th century?

The other case is related to two shipwrecks of 18th-century merchant ships. Would it be possible to combine written documents, like toll and salvage records, to find a shipwreck? Is it possible to identify a shipwreck, and what methods should be used in the archaeological research process?

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TH3-11 Abstract 13
The relationship between archive documents and archaeological material of a naval conflict
Author: Mäkinen, Johanna, University of Helsinki, Sipoo, Finland (Presenting author)
Keywords: naval conflict, wreck sites, written documents
Presentation Preference: Oral

This research questions the role of archive documents in conflict archaeology. The second naval battle of Svenskund 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 disarmed, 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.

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TH3-11 Abstract 14
Analysing Archived Material to Unravel Wheelhouse Chronologies in the Western Isles, Scotland
Author: Dr. Kvas, Anthony, University of Glasgow, East Kilbride, United Kingdom (Presenting author)
Co-author(s): Brown, Lisa, Historic Environment Scotland, Edinburgh, United Kingdom
Keywords: Chronological Analysis, Bayesian Chronological Modelling, Scottish Iron Age
Presentation Preference: Oral

The site of Bruthach a’Tuath on the Isle of Benbecula was investigated as part of rescue excavation which was undertaken in 1956 and 1957 in advance of the building of a Rocket Range in the Uists; the results of which were never published. In the 60 years since, the finds material and paper archive has found its way into the collections of a number of different institutions, including the National Museums Scotland, Keldingrove Museum, Historic Environment Scotland, and the National Archives. Collation and analysis of this fragmented record has brought to light previously unrealised information about the excavated features, showing the presence of at least two wheelhouses and numerous related features.

Details for the excavated deposits were lacking, although the location of the artefacts and the date they were found recorded on the finds boxes; consequently, a finds matrix formed the basis for interpreting the stratigraphy on site. A radiocarbon dating program was undertaken to identify the timing and sequence of activity related to the wheelhouses. Twenty-six radiocarbon measurements were taken from single-entities of wood charcoal, animal bone, human bone, and pottery residue. A Bayesian approach that considered stratigraphic contexts and feature formation processes was used to estimate the site chronology and sequence. Results demonstrate that activity occurred primarily in the 2nd–1st centuries BC. The chronological analyses have also helped identify ancient curation and provide evidence addressing if Iron Age activity may have been more extensive than the two wheelhouses. Further, this demonstrates the potential that artefacts in older archives have for producing new chronologies and for refining archaeological interpretations. Similar approaches could be taken to help maximise the potential of old archives that may be incomplete or not recorded according to modern standards.

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TH3-11 Abstract 15
The Aerofototeca Nazionale of Rome: a photographic archive for the study of Italian heritage
Author: Foa, Lisa, Roma, Italy (Presenting author)
Keywords: archival analysis, aerial documentary, Adamesteanu
Presentation Preference: Oral

The Aerofototeca Nazionale (AN), part of the Italian Ministry of Culture (MBACT), was founded in 1958 as a historical photographic archive of the Istituto Centrale del Catalogo e Documentazione – part of the Italian Ministry of Culture (MBACT). The archive has become a fundamental source for archaeological research and the safeguarding of our heritage. This research paper aims to show how the potential of this archive has grown. From the first body of archival materials and designs as an instrument for the collection, preservation, cataloguing and study of aerial photographic records, the Aerofototeca is an essential resource for archaeological research and the safeguarding of our heritage.

The Aerofototeca has been a part of the MBACT since 1993 and its management has been part of the wider research on the Aerofototeca. The Aerofototeca, followed by field research, worked on the rearrangement of a group of more than 4,000 slides, the so-called “fondo Adamesteanu,” a selection of those slides published on the periodical Archeologia Aerea VI, 2012. The aim of this paper is to show a few examples of the potential of this archive as a fundamental source for understanding the development of fast-changing landscapes and as a tool for the safeguarding of Italian archaeological sites.

In particular, starting from the pioneering 1908 aerophotographic survey of a stretch of the Tiber River, some areas along the river will be analyzed on the basis of the materials available at the Aerofototeca, retracing phases of ancient and recent history of the landscape.

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TH3-11 Abstract 16
Endangered Archaeology in the Archives: utilizing historical aerial photography to assess heritage
Author: Banks, Rebecca, University of Oxford, Oxford, United Kingdom (Presenting author)
Keywords: aerial photography, databases, heritage under threat
Presentation Preference: Oral

Endangered Archaeology of the Middle East and North Africa (EAMEA) 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 EAMEA 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.

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TH3-11 Abstract 17
Another kind of archive: on the preservation of publications and born-digital material
Author: O’Riordan, Emma Jane, Society of Antiquaries of Scotland, Edinburgh, United Kingdom (Presenting author)
Co-author(s): Osborne-Martin, Erin, Society of Antiquaries of Scotland, Edinburgh, United Kingdom
Keywords: archaeology, digital, publications
Presentation Preference: Oral

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An essential documentation from the A. D. Archive of Rome to throw light on archaeological issues

Author: Vecchiome, Alessandro, Sapianza - University of Rome, Rome, Italy (Presenting author)
Keywords: archaeology, Hadrian, Rome
Presentation Preference - Poster

In the era of MDAS (Massive Data Acquisition Systems) applied to archaeological sites the battle between the so-called "old" and "new" research methodologies and data recording techniques is burning up. But at the moment there is still something invisible even to the best-equipped tools: the traditional data archives. Thinking as a human being is unavoidable to unlock this large number of items we need to use.

The Historical and contemporary Archives of the Soprintendenza agli Scavi e Monumenti della Provincia di Roma was created in 1870, 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 WWI. 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 Collosi, il Museo Nazionale Romano e l’Area Archeologica di Roma is under the responsibility of Alessandra Capodiferro. It’s housed in the National Roman Museum at Palazzo Altemps. The museum and the archive are nowadays strongly linked to each other and to the territory they cover.

The Archive and also its website (http://archeoroma.beniculturali.it/ada, Archeological Data Archive), created in 2004 by Federico Filippi and Lucia Attília, is a public cultural place intended for the community. The contemporary shape of the office is being developed within (and by) the Soprintendenza of Rome within the “Service of Historical Archives”. The ADA is intended for scholars of Roman archaeology and it has become a meeting place of knowledge sharing and exchange. For that purpose the website hosts a huge number of online data such as the “excavation report”, e-books and, soon to be published, the iconographic collection.

The author of this paper was involved in a nearly two-year long work, supporting the activity of archiving and 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.
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: - Dr Balco, William, University of North Georgia, Dahlonega, Georgia, United States of America (Presenting author)

Keywords: Field school, Instructional research

Presentation Preference: Oral

Archaeological Education is going through either a crisis or an expansion; through revision or agony. It very much depends on the observer and the field from which he or she comes. In Europe, archaeology used to be taught solely in History departments. In the United States, it is part of Anthropology or Classics Department. Archaeological Science is becoming increasingly relevant, and techniques in which no digging is involved are preferred by researchers. What about Archaeological Heritage Management (AHM)? What is its specific weight and role in this new higher education landscape? AHM is frequently treated as an appendage to traditional research rather than an essential element to be planned for from the beginning. It also taught in the final semesters of a degree, as it traditionally reflects something done at the end. Interestingly enough, a good number of graduates in archaeology find jobs related to AHM: museums, historical societies, international organizations, cultural tourism, etc. This disconnection between what we are teaching our students and what awaits them in the outside world needs some attention. Over the past several years, the authors have been incorporating AHM as an integral part of our curriculum, both in the classroom and the field, on campus, and in study-abroad programs. We have also developed and implemented a field school that goes beyond traditional training in practical skills of surveying, excavation, recording, and artifact processing, and deals primarily with the idea of heritage management and the real problems that it faces today. In this paper, we describe our experience in developing an archaeological and heritage management field school on the island of Menorca (Spain) from 2009 to 2016, which started as a traditional fieldschool but evolved to an "only-heritage" experience. We teach archaeology from a holistic perspective that incorporates the theory and practice of archaeological stewardship: preservation, interpretation, management, and public outreach of archaeological resources. We want to share the reasons for this shift, and the challenges we have faced to make it work.
The flotation method to process archaeological sediments is proved to be the most efficient way to recover plant macroremains. Although the importance of flotation of sediments for a successful sampling, it is still not always applied systematically, biasing further the representation and interpretation of archaeological remains. Many are the reasons that have been holding back its application and most are linked with logistical issues. The development of the Bucket Flotation by Dorian Fuller has allowed to apply this method in a simple and efficient way, even under conditions where limited access to water is imperative. This project aims to characterize the occupation of Middle and Upper Palaeolithic in the Lis Basin (Lisboa, Portugal), applying the most new methodologies for field and lab work, towards a high-resolution archaeological record. As well as scientific goals, our project intends to provide formation as field school for students that participate in the excavations, allowing them to contact with all the methods and techniques applied in this project. Here we present the first results from the flotation field-lab work with students, applying the Bucket Flotation method to the total sediments excavated from the site Abrigo do Pogo. The processing of all samples from Abrigo do Pogo were measured in both volume and time to understand how expedite the task.

The archaeological fieldwork school attracts students and early career scholars from all over Europe and North America. Archaeological Field Schools have been for many years now seen as the suitable environment in which archaeology students can be led 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, management, engagement with local community and visitors. The aim of this paper is to propose means of creating the base for improving this fairly new way of doing Archaeology, which does not only answer the academic research questions but has to provide students their first chance of gaining field-working experience and engage the local communities, bearing in mind the financial issues.

The theoretical and methodological perspectives in archaeology

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Keywords: Flotation, Portugal, Prehistory
Presentation Preference: Oral

The flotation method to process archaeological sediments is proved to be the most efficient way to recover plant macroremains. Although the importance of flotation of sediments for a successful sampling, it is still not always applied systematically, biasing further the representation and interpretation of archaeological remains. Many are the reasons that have been holding back its application and most are linked with logistical issues. The development of the Bucket Flotation by Dorian Fuller has allowed to apply this method in a simple and efficient way, even under conditions where limited access to water is imperative.

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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 have realized how important it is for the survival of archaeology and free management find a way to make culture more accessible, not a slave to political austerity. Several can be the ideas an archaeological site could develop in order to achieve its “freedom”: paid guided tours, small gadget for visitors, open day/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 not missing archaeological and managing knowledge all in the hands of one who really run the excavation and its activities?

These, obviously, are just some suggestion. Thus, analyzing and comparing experiences tested already, the present paper will try to give an overview about the current status of archaeology and its future opportunities and possibilities if well managed.

TH3-12 Abstract 10

Drama - Merdzhumekia:

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

Keywords: archaeological field-school, Drama - Merdzhumekia, German methodology

Presentation Preference - Poster

The prehistoric settlement mound Merdzhumekia was situated near the village of Drama in the Tundzha municipality, Yambol district. It has been completely excavated during the Bulgarian-German project from 1983 to 2011. The joint project was undertaken by Sofia University “Sv. Klement Ohridski” in Bulgaria and Saarland University in Germany. The international project was led by prof. Alexander For, prof. Jan Lichardus, prof. Franco Bartemes and Iliya Iliya.

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 printboard-archaeology, and during a short workshop I will let you all be a part of excavating the local community through a printboard at the venue.

TH3-13 Abstract 03
Archaeological carpentry. Doing theory with your hands
Author - Dr. Mikuz, Dimitrij, University of Ljubljana, Institute for the protection of Cultural heritage, Ljubljana, Slovenia (Presenting author)
Keywords: art, carpentry, theory
Presentation Preference - Oral
In the introduction to his book “Allen Phenomenology” (2012) Ian Bogost suggests that philosophers ought not 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 to 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 re-arranging 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 Beliaev, 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 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 of the art and science have been existed before: in the history of Russian archaeology of the XIX-XX centuries there are plenty of examples of cooperation between the archaeologists and artists. The study of these examples could in time become an important direction of the special art research.

In the report the results of the author’s observations on the creative approach to the archaeological monuments in Russia would be demonstrated.

TH3-13 Abstract 05
Archaeological Field Schools in the UK: What, Where and How?
Author - Roberts, Arabella, National Museum of the Royal Navy, Cranleigh, United Kingdom (Presenting author)
Keywords: current status in UK, development, field school
Presentation Preference - Oral
In this paper 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 turned to real data. Drawing from the first database of archaeological field schools in the UK and from a qualitative survey of individuals who attended field schools recently, they offered an insight into the current situation of field schools in the UK today. The response demonstrated a broad confusion over the definition and expectations of field schools, fuelled by a lack regularity on the length, demographic, cost and curriculum on offer.

What this research shows is a fundamental area of the archaeological sector which, in the UK and contrary to its academic counterpart, has failed to develop in a way which caters to the demands and regulations required by its participants. In light of the economic difficulties field schools are facing, they are being forced to compromise and develop. It is therefore a perfect opportunity, albeit 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:** Mermol-Martínez, José-Antonio, Arqueología de Guardia Association, Benajúa (Moria), Spain (Presenting author)

**Keywords:** archaeological practice, Archaeological theory, creative archaeology

**Presentation Preference - Oral**

The image projected by the archaeologists in the archaeological practice on the sites has set the social valuation of Archaeology in terms of relevance and usefulness. However, the procedures followed in the archaeological research have blocked, in many cases, the consideration of Archaeology as an artistic practice to integrate, on purpose, the archaeological works into the citizen's interests. Taken into account the destruction of social, cultural conventions which are posed by some special visual styles as Street Art and Photo/Video journalism, it is analyzed the creation of archaeological Ethnography to identify visual patterns which belong to the archaeological practice, which transform it into an aesthetic of movements, to allow the reflection about the concept of "universality". This go beyond the Theory and has been applied on practice during a field school of Archaeology done at an official High School of the Spanish State, in Murcia, in which was made relevant the presentation of new ways to understand common values of Archaeology as the experience, materiality and temporality through playing with the visual perceptions of both artistic and archaeological practices, with the creation of Art and the take of consciousness. This, finally, propose us two interesting conceptions to the Archaeology: the inclusion of creative ways to see the meanings of archaeological practice, and the utilization of Archaeology in an activistic sense to fight the injustice derived from the integration processes at the moment of origin.

**TH3-13 Abstract 07**

**Kulmin - digital dissemination of cultural heritage**

**Author:** Prestvold, Kristin, Sør-Trøndelag County Authority, Trondheim, Norway (Presenting author)

**Keywords:** digital dissemination, Kulmin

**Presentation Preference - Oral**

How do we inspire curiosity and interest in heritage and cultural history when the personal guide is absent? How can we create an engaging experience for all, regardless of age and background? Sør-Trøndelag County Authority has developed a product and a strategy for digital dissemination of cultural heritage via mobile phones and tablets named Kulmin. Focus is on the good story, the good storyline. Focus is on people, women and children's encounters with the cultural heritage. The monuments and sites are made vivid and dramatic through text, audio and video on smartphones and tablets in stories based on archaeological, cultural and historical facts. The stories are characterized by myths, legends, events and people, conveyed through dramatization, humor and other narrative devices.

The dissemination has included input from the hearing and visually impaired, and the contents should be understandable and engaging independent of the user's ability or disability. The aim of Kulmin is to make cultural heritage accessible to all.

Kulmin takes the step from protection of our cultural heritage to facilitate, make available and visualize the historical monuments and sites. Kulmin as a product is not technologically advanced. The innovative aspect of Kulmin is in how heritage is being conveyed. Technology is only the tool, the content is the king with an aim to capture the interest and create curiosity. Dramatizing the past through the good story- makes the cultural heritage more accessible and exciting.

**TH3-13 Abstract 08**

**Let Archaeology be Archaeology and Art be Art - and let them tell a story side by side**

**Author:** Bangabe Diebing, Nina, Municipality of Skanderborg, Skanderborg, Denmark

**Co-author(s):** Purup, Marianne, Visit Skanderborg, Ry, Denmark

**Keywords:** Art, Collaboration, Cultural Tourism

**Presentation Preference - Oral**

We strongly believe that the archaeological discipline benefits from interdisciplinary approaches. We believe in co creation and equality between art and archaeology but still think 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.
The relation between settlement and the socio-economy has remained one of the prime topics in archaeology. However, there is no simple, straightforward link between settlement organisation and socio-economic process. The same general form may correspond to different socio-economic situations. In the case of urban settings for instance a certain neighbourhoud in a town can, at one point, be considered a slum, and during another period house individuals and families of the upper class. The general layout of the area may be almost identical, while the population, interiors and details have changed.

The meaning of words like urban, village or hamlet are not at all simple and straightforward, and the particularity of given time/space situations is of great importance. In the Early Modern setting the town becomes a kind of ideal, in different ways for different actors, while still being a relatively unusual settlement form.

We wish to develop an analytical approach, which helps to identify similarities, while acknowledging the significance of the variability. When exploring settlements we need a broad range of theories and methods to work with and it is important to avoid initiating the analysis with rigid concepts and models. Instead of departing from simple typologies at the first stage of analysis, it could be more interesting and advantageous to start by tracing several factors, and subsequently look for correlations. It is most likely that such an approach allows for multiple perspectives when identifying socially, economically and/or politically relevant variables.

This session invites papers addressing to settlement analysis, in which variability is taken as an asset, even when looking for the general. We will discuss how archaeologists can identify variability and similarity at different spatial and social levels. Focus will be on examples from the Early Modern, but we are happy to include other relevant examples as well.

**TH3-14 Abstract 01**

**Title:** Farms, hamlets, villages and towns: Settlement variability in Early Modern Scandinavia

**Author:** Dr. Rosén, Christina, Arkeologerna SHMM, Töllsjö, Sweden (Presenting author)

**Keywords:** Early Modern, Scandinavia, Settlement

**Presentation Preference:** Oral

Words like farm, hamlet, village or town are often used to describe different kinds of settlements but they are not simple and straightforward. Archival sources, maps and archaeological record show no clear link between spatial form, socio-economic situation and political status. The same general form may correspond to different socio-economic situations. In this paper I will discuss settlements by taking variability as the starting point rather than pre-conceived concepts and models. Maps, tax registers and archaeological records from several parts of Scandinavia will be discussed with a focus on Western Sweden.

**TH3-14 Abstract 02**

**Title:** Areas reserved for rich and populated by poor ormelange of many factors?

**Author:** Dr. Sappärnén, Liisa, University of Turku, Turku, Finland (Presenting author)

**Keywords:** socio-topography, layout, Turku, early modern, urban settlement

**Presentation Preference:** Oral

Research, even if focused on the same topic, is relevant and has many variables, which may change in the course of time affecting approaches, methods and results in remarkable ways. In urban contexts in Finland, archaeological practise has long been restricted by the existence of studies based on historical information, which however is not abundant or diverse. The supremacy of historical studies has especially affected the research of the early modern and modern periods in those towns with earlier history where the focus of archaeological research has been in medieval periods. During the last two decades, archaeological excavations have increased the amount of source material, which offers an interesting supplement for historical studies and cartographical information.

In this paper, the relation between research, settlement and the socio-economy of the city is discussed with an example of Turku, which is the oldest town of the present-day Finland and was one of the most important towns of the medieval and early modern periods of the whole Sweden. The first presentations of the layout of the city are from the 1630s and span about 300 years of the establishment and settlement of the town. It took more than 100 years before a map was made in the 1750s with the list of the plot owners including information about their professions and site values.

Tracing the earlier settlement and economic-topographic town’s topography is the line trying to compose comprehension about the picture by piecing an old puzzle with only a few pieces that have been spared. The information from the 17th century and beyond is valuable as such, but how much this information has labelled the concepts and interpretations about the socio-topography of ‘Turku’ in earlier periods and on what grounds? The city is a living organism with variable elements transforming the character and dynamics of different parts and remodelling the relations between them on a different scale and bearings. The paper presents answers for the following questions. What elements formed the settlement of Turku in the 16th century and what was the relation of this settlement to earlier as well as to later inhabitation of the town? What kind of picture of events and socio-economic topography can we create with the help of analysis of the evidence available by now? What was the relation between the reconstruction, extension and regeneration of the town? Still, the picture cannot be completed, but could it be more comprehensible with correlations with other cities?

**TH3-14 Abstract 03**

**Title:** Norrköping and Kalmar: A spatitemporal analysis of two early modern Swedish towns

**Author:** Agnesten, Sofia Andrine, Gothenburg university, Gothenburg, Sweden (Presenting author)

**Keywords:** Early modern time, Settlement variabilities, Spatio-temporality

**Presentation Preference:** Oral

During the early modern time, one of the most extensive phases of city transformation in Europe occurred in Sweden. This spatitemporal analysis explores settlement variabilities and social dimensions in the two Swedish towns Norrköping and Kalmar during the time period. These were, from a Swedish Early Modern perspective, rather large towns with both having major ports on the east coast of the Baltic Sea. However, from a utilitarian and functional perspective they differed in many aspects and because of these differences they help illustrate some of the urban settlement variabilities of this dynamic period. The space analysis is performed on several levels, where the spatial dimensions are examined in the towns as a whole, but also at block level and even more through at plot level. The temporal part of this analysis focuses on exploring various time related processes that follow different rhythms and the possible impacts these on the lives of the town’s residents. Some processes are slowed down by the inertia of society while others are more rapid, such as seasonal changes. The data from about two hundred archaeological field reports together with a theoretical orientation helps to unfold a more diverse picture of the Swedish early modern town.

**TH3-14 Abstract 04**

**Title:** Same name, same background, same function? Similarities and differences of the Scandinavian Husebyer

**Author:** Dr. Lemm, Thorsten, Stiftung Schleswig-Holsteinische Landesmuseen Schloss Gottorf, Schleswig, Germany (Presenting author)

**Keywords:** cultural-historical background, royal administration, royal farm

**Presentation Preference:** Oral

Since the early 20th century the more than 130 hamlets or farms in Scandinavia and the Orkneys known by the name Husaby, Husaby, Husaby, Husaby, etc. have been a relevant topic in historical, archaeologcial and onomastical research, closely linked to the discussion of kingship and political administration. Espe-cially the highly frequent use of the place-name Husaby, their uneven distribution over Scandinavia, and the use of husabyr) as an apppellative in some early written sources led to the understanding of a great majority of the Husabyer as places with a royal background. As such the Husabyer have in many cases been a substantial argument in theses on the administrative and economic structure of royal power in the Viking Age and the early Medieval Period and in theories about the early state formations. However, recently conducted detailed analyses of their cultural-historical backgrounds give reason for a much more differentiated view on the Husabyer. There are certain similarities and differences that can be observed between these sites and there must be reasons for that. Were different historical and/or chronological backgrounds responsible for the diversity of the Husebyer? And how does this affect the widely accepted interpretation of these sites? These questions will be addressed by the paper and hopefully discussed during the session.
Material, Socio-Economics and Outcome in the Medieval Baltic: A Triadic Model of Settlement Analysis

**Author:** Thoeming, Alix, The University of Sydney, Forest Lodge, Australia (Presenting author)

**Keywords:** early medieval, outcome triad, settlement analysis

**Presentation Preference:** Oral

One of the great challenges inherent in archaeology is the fact that what humans say, and what they do, are very often different things. In the same way, as similar material forms may correspond to different socio-economic phenomena, so may the reverse be true. Deterministic approaches to either as a direct informant of the other are not only reductive, they can often more than not be a logical fallacy. The triadic model proposed by Fletcher, in which settlement success is measured not only by a relationship between material form and socio-economic situation, but also by the outcome of their relationships. The case study for this paper will be the initial urban development which took place in the Baltic region during the early medieval period. New and unusual settlements of very similar form, albeit with varying emphases on elements such as ritual, royal power, politics and trade, appear across the landscape between the 7th and 9th centuries CE. This development comes ostensibly in response to the changes happening in Europe after the fall of the Roman Empire, and the establishment of new trade routes from the north is seen as a significant contributor both here and in the North Sea region. These Baltic settlements - for which terminology has proven notoriously difficult - mostly exist in their initial form for no more than a quarter of a millennium, before transforming into a more recognisable, high-medieval town-like form. This process, however, is variable in its execution. The settlements, among other outcomes, experience destruction, abandonment, conquest, and re-use in conjunction with a younger settlement close by, revealing this particular space-time context as incredibly valuable in exploring the social-material-outcome triad.

**TH3-14 Abstract 06**

**Did socio-economic developments change the landscape of Ireland?**

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

**Keywords:** Agriculture, Early Medieval Ireland, Economic Development

**Presentation Preference:** Oral

The two greatest influences to the socio-economic landscape of Ireland in the early medieval period were the coming of Christianity and then the raiding and subsequent settling of the Vikings in the coastal 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 catalysis, rather than the instigators of change.

In the aftermath of the Late Iron Age lull, which ended c. AD300, there was an increase in crop production, the growth is seen in stark contrast to the previous five hundred years or so, which it seemed to be a time of stagnant growth. The increase of crop cultivation, as well as the introduction of new technologies, such as the water-mill and the counter plough, increased production, allowing specialisation and creating a surplus, furthering a division of labour and exchange networks.

When talking about the early medieval period in Ireland, one instantly thinks of the ubiquitous ringforts, of which it is now estimated, there was as many c.70,000. Despite Stout's estimation that they went out of use after c. AD900, there is no other type of secular settlement found in all areas of the country to populate the landscape. It is possible that although ringforts did not change in morphology after this period, many being re-occupied in the later medieval period, its possible their location echoed a change in their function, away from being a cattle pen to being one used to control and exploit the agricultural producers. While some have attributed the inception of souterrains as refuges from Viking raiders, I would view them as drier storehouses for grain, also settlements with inferior preservation can hold evidence of stabling that can be proven by various scientific methods. Finally, there will be tested whether it is possible to evolve these results on different settlement concepts and periods.

**TH3-14 Abstract 07**

**Socio-economic changes in northern Granada between Medieval and Early Modern Ages**

**Author:** Dr. García-Contreras Ruiz, Guillermo, University of Reading, Reading, United Kingdom (Presenting author)

**Keywords:** Early Modern Ages, Late Middle Ages, Suburban landscape

**Presentation Preference:** Oral

Granada was the capital of the Nasrid Kingdom, the last Islamic emirate in Iberian Peninsula during the 13th-15th centuries. By the end of the Middle Ages, this town grew and changed its appearance due to both, the increasing of the number of people arrived from other parts of the Peninsula and the political, economical and ambiental decision about how to manage its surrounding area. According with the written sources, the northern part of the city, outside of the walls, was a very productive area in where some farms and alminias were built, partly thanks to the water management. It was known as “Cajones de Aynamadar” and was described as an area with rich houses and farms, vineyards and the passage of one of the most important water channels of Granada: the ditch of Aynamadar.

Granada was conquered in 1492, data that marked the end of the Christian conquest of the whole Peninsula. After that, at the beginning of the 16th c., parts of these lands in northern Granada were given to Carthusian order to build a monastery. Since then, in addition to the construction of a monumental monastery, the monks became owners of a large space replacing the previous Muslim owners, and they decided to change the production system, creating dry crops in terraces and wailing all domains, transforming the landscape.

At the present time this area houses part of the university campus of Granada. In different excavations, it had documented here a long sequence of occupation beginning in prehistoric times and continues in Roman times when a area of pottery and ceramics workshops existed. However, the period of the Late Middle Ages and the consequences of the Christian conquest remains non well-known up to the last years.

During 2013 and 2014, was carried out a great work of renovation of roads that has permitted us to conduct a great archeological intervention among the university Campus. The remains documented in these works, along with other previous excavations and the information from written sources will serve our objectives. Our aim is to show how the suburban landscape was transformed following the Castilian conquest and the Christian colonization in the last lands of al-Andalus.
TH3-14 Abstract 10
Islands on lakes – life and rituals of Slavs in Pomerania during the pogan-christianity transition

Author - Prof. Chudziak, Wojciech, Nicolaus Copernicus University, Torun, Poland
Co-author(s) - Prof. Makowiecki, Daniel, Nicolaus Copernicus University, Torun, Poland (Presenting author)

Keywords: Pomerania, Islands, Religion, Slavs

Presentation Preference: Oral

The baptism of Mieszko I, the founder of Polish state, in 966, had been, for the Slavs living in the Odra and Vistula basin, an important caesura between a pagan style of life and the new, Christian one. For a long time, among medievalists and archaeologists, the knowledge on this topic has been based on researched proto urban centers such as Szczecin, Wolin, Kolobrzeg and Gdansk. So far, little attention has been paid to the centers located on the islands of Pomerania Lakeland. However, since 2004, in the Institute of Archaeology at Nicolaus Copernicus University in Toruń, a research on the significance of these islands in the socio-economic and religious life of Slavs in 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 Zoll, located on the lake Zarasai, 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 - Zlobow, Ezra, SUNY at Buffalo, Buffalo Ny, United States of America (Presenting author)
Co-author(s) - Dr. Duschanko, 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 religionism 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 Untermann-Swabian-group of the middle/late Urnfield Culture has never been analysed by a combined approach of the spatial and temporal distribution of settlement, hoards, burial patterns (n=701 sites including isolated objects) and grave goods. This case study of Northern Württemberg introduces a new idea about of structure and organisation of society at Ha A2/B1. Furthermore it briefly presents a previously unpublished cemetery of the transitional Ha A2/B1 period at Erlenbach “Käppelesäcker” (district Heilbronn, Germany). Settlement patterns suggest a society whose patterns followed natural resources while settling in close proximity to the most important rivers of the region, the Neckar and Tauber. Although hilltop settlements exists no correlation with settlement accumulation or clusters could be detected. Therefore it is hypothesised that the patterns of settlement were governed by exploitation of natural resources of the lowland and access to larger rivers. The importance of rivers is stressed by the pattern of hoards as they mainly appear in the Neckar region. Burials follow the settlement pattern and imply the preference of rivers and suitable soils for agriculture.

Trade had to be an important factor of the North-Württembergian societies as they never developed distinct types of metal artefacts. No export objects are known but agricultural products and salt are both possible ideas. The ability to trade suggests over production and possibly the existence of a vertical social structure. As cremation was the prevailing burial practice vertical organisation and its impact on individuals can only be interfered by the analysis of grave goods. Early and early middle urnfield culture graves usually do not exhibit dissimilar “wealth” through grave goods. But at the cemetery of Erlenbach “Käppelesäcker” the grave of a child (7-10 years) yielded a small golden wire ring, a rare imported broken bronze bracelet, other metal objects and pottery. This finding might suggest a heritable form of social status but no other rich graves were detected in the necropolis. It is hypothesised that some individuals could accumulate more imported objects than others and some form of vertical organisation existed.

Overall the study concluded that the data of the transitional Ha A2/B1 period suggests a society in flux. First obvious differences in grave attire start to exist but the settlement pattern does not suggest any interregional forms of 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 University, Newcastle Upon Tyne, United Kingdom (Presenting author)
Co-author(s) - O' Riagkin, Russell, Ruhr-University, Duisburg, Germany
Keywords: Atlantic, Landscape, Networks
Presentation Preference - Regular session

Taking Europe's Atlantic seaboard as an area of study is by no means adopting a novel perspective, even if the majority of the scholarship on its constituent parts has been of a narrow spatial perspective, usually focussing on either a single region, or on immediately adjacent regions. Where a broader spatial remit has been adopted, it has usually been within a comparativist paradigm, with designations such as 'Atlantic Fringe' bearing the imprint of a mixture of Classical bias and more modern sociocultural disorientations. Conversely, the temptation of adopting a neo-Romantic exceptionalist approach to the wider region, emphasizing its uniqueness and unity of shared traits must also be avoided. Therefore, this session will adopt a via media. Papers are sought examining regional similarities and differences, responses to environmental and the movement of people, ideas and things within 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 issues are particularly encouraged, as are papers adopted a comparative perspective, utilizing 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 might also be accepted to set the Atlantic Arc in its wider geographical context.

TH3-15 Abstract 01
The materiality of early Christianity: stone and the sea in western Scotland
Author - Dr. Maklonado, Adrian, University of Glasgow, Glasgow, United Kingdom (Presenting author)
Keywords: Christianity, materiality, religion
Presentation Preference - Oral

Narratives of conversion to Christianity in Britain and Ireland prioritise the actions of human agents and the agency of their bodily remains. However, unlike much of western Christendom, the insular Atlantic provinces are characterised by a relative disinterest in translating and venerating the relics of the saintly dead before the 7th century. It is worth asking how saints and sacred places were created in this context, and how these ideas a materialist approach raises new questions of personhood and eucharistic consumption. This is achieved through understanding the identity of insular Christianity through the study of physical, artefactual, and textual remains.

The recreation of identities in the late Iron Age and Roman period through changes in the composition and setting of funerary sites. Evidence from early medieval burial sites suggests that the establishment of a collective identity of a community involved the veneration of a common thread. This paper will use local and regional spatial similarities between settlements and 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 the 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 this 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

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, principally at the north-western edges of Europe. With Christianisation, carved stones were adopted as a prominent part in the process, by embodying and expressing Christianity as part of ideas 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, and their role within the Christianisation process can be appreciated and further understood. This paper will thus present early Christian carved stones and rune stones from Ireland, Scotland and Scandinavia using a three-level comparative approach developed in my recently completed PhD thesis, which consists in looking at and comparing the monuments, the landscapes they are erected in, and ultimately their role within the Christianisation process. The theme of movement in the landscape, and how it is created by the presence of early Christian carved stones, will be used as a common thread.

TH3-15 Abstract 03
Self Affirmation: Building new identities through contact and exchange in early medieval Northumbria
Author - Drain, Celia, Greenwelch, 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 enforce 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 5th-8th 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 (AD 500-1000)
Author - Dr. Wilson, Jacqueline, University of Bristol, Bristol, United Kingdom (Presenting author)
Keywords: identities, 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 (AD 500-1000). The most recently published research used multiple lines of investigation and multidisciplinary methods to explore the Roman material evidence and its distribution across Ireland in this way. Adopting a new approach here - especially one that encourages a via media - frees the author from the prior constraints that limited wider theoretical discourse. In developing an alternative perspective, we can now move forward from the outdated dichotomies that placed Roman and native (or in the 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 this 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 Ragáin, Russell, University of Cambridge, Heidelberg, Germany (Presenting author)

Keywords: Early medieval Europe, Multiscalar perspectives, Theoretical archaeology

Presentation Preference - Oral

This paper will explore the epistemological and ontological validity of taking the various territories along Europe’s Atlantic seaboard as an area of study in the first millennium AD. It draws on some the insights gained thus from an on-going wider collaborative research project on the Atlantic Arc in the first millennium AD with Patrick Gleeson, University of Newcastle, and Álvaro Carvajal Castro, University College Dublin. In keeping with the overall theme of the session, an attempt will be made to steer a course between various extremes usually portrayed as a series of binary oppositions, as evinced in the various particularist/generalist, -emic/-etic, structure/agency, micro-/macro- and exceptionalist/universalist debates across the social sciences, archaeology included. Different poles have attracted varying numbers of adherents in recent decades, as archaeology – and indeed the social sciences in general – lurched from one paradigm to the next. It is argued here that there is no single way of thinking about historical problematics or 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 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”.

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.
and mainly in old LSC method. Now we possess new series of these data, made in AMS mode. They allow us to correct some aspects in development of hillforts in Lithuania. Between them are the time of origin of hillforts and this development in Roman and Migration periods of Iron Age. C14 data permit to precise some aspects in this development, but not change the general schema. The new C14 data, given from hillforts in neighbouring countries also estimate for creating the modern model of development of hillforts in South-East Baltic region.

TH4-02 Abstract 03
The application of geophysical investigations in Baltic hillforts
Author - Dr. Messe, Sebastian, German Archaeological Institute, Berlin, Germany (Presenting author)
Co-author(s) - Dr. Krenke, Nikolay, Institute of Archaeology RAS, Moscow, Russian Federation
Keywords: Baltic Hillforts, Geophysics, Noninvasive methods
Presentation Preference - Oral
Since 2010 several archaeological sites have been geomagnetically surveyed in Lithuania. In the framework of this cooperation also several hillforts (Taurapolis, Opstaniai/Vilkyskiai, 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 sites the surveys also provided very precise and hillfort unknown information about the settlement context like in Taurapolis and Opstaniai/Vilkyskiai (fortification ditchs) or Jakai/Surmantai (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 Taurapolis - and for the development of future concepts and strategies for the protection and preservation of these sites. The paper focuses on the most exciting results of these surveys which will be presented and discussed during the talk.

TH4-02 Abstract 04
Signals of subsistence economy as revealed by pollen data: a case study from Lithuanian hillforts
Author - Dr. Stancikaitė, 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 exception and pollen, plant macrofossil, diatom or phytoplankton analysis was carried out in environs of the hillforts. In mostly cases, these investigations was a part of complex interdisciplinary approach that provided scientists with complex information dealing with palaeoenvironmental, economical, chronotological, cultural and etc context of the investigated monument and surroundings during the 1-2 millennia AD. However a new data revealing the peculiarities of the vegetation pattern, introduction and expansion of the cultural plants and economical, chronological, cultural and etc context of the investigated monument and surroundings during the 1-2 millennia AD. Hence a new data revealing the peculiarities of the vegetation pattern, introduction and expansion of the cultural plants and economical, chronological, cultural and etc context of the investigated monument and surroundings during the 1-2 millennia AD. Hence a new data revealing the peculiarities of the vegetation pattern, introduction and expansion of the cultural plants and economical, chronological, cultural and etc context of the investigated monument and surroundings during the 1-2 millennia AD. Hence a new data revealing the peculiarities of the vegetation pattern, introduction and expansion of the cultural plants and economical, chronological, cultural and etc context of the investigated monument and surroundings during the 1-2 millennia AD.

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 paleogeographic reconstructions based on pollen data were made for the coast of the Baltic Sea by European and Russian scientists. However, such reconstructions for Sambia Peninsula are still lacking. Archaeological studies of the Sambian expedition (A RAS, 2005, 2010-2014) in the area of the village of Kulikovo (Kringitten) have identified a number of natural and man-made objects that are suitable for palynological studies. These are cultural layers, pits and moats fillings, 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 2,000 years. It is shown that prior to the intensive agrarian development the forest belt was formed with coniferous deciduous forests with spruce, pine, oak, linden, hornbeam, elm were widespread, along with black alder forests in the lowlands. The mass extermation of upland forests was associated with Roman time (about 1800 BP). In the following, Prussian period (about 1300 BP), pollen data indicates a continuation of deforestation - decrease or complete disappearance of the black alder, which is a result, apparently, of the amelioration of lowland swamps for pastures and fields. Pollen data indicates the absolute predominance of open agricultural landscapes also during the subsequent periods, until the 20th century. Some features of the land use of different epochs, such as the cultivation of various crops, have been revealed. Also, pollen studies allowed us to identify some local episodes of vegetation changes associated with the history of individual archaeological sites. In addition to the late Holocene sediments associated with human activities, well-preserved organic sediments with radiocarbon dates 8500-10000 BP were found in the floodplain of the creek near the hillfort. Pollen analysis allows us to reconstruct the local environmental conditions at the boundary of the Peatlozone and Holocene: the gradual transformation of a shallow freshwater reservoir in the marsh and then in the fen, while pine forests dominate the surrounding landscapes.

TH4-02 Abstract 06
Hillforts Kringitten and Dieven in Zamland - versions of interpretations
Author - PhD Krenke, Nikolay, Institute of Archaeology RAS, Moscow, Russian Federation (Presenting author)
Co-author(s) - Ershov, Ivan, Institute of Archaeology RAS, Moscow, Russian Federation
Keywords: hillfort, pottery, radiocarbon
Presentation Preference - Oral
The presentation deals with two strongholds located in Zamland close to the coast of Baltic Sea near to each other. Test excavation of ramparts and ditches showed not very complicated stratigraphy. Hand made pottery of Prussian type have been found in the base of the ditch. Radiocarbon date 1240+/-30 (GIN-15093) fits well with traditional archaeological date of Prussian ceramic. Main question got the negative answer. Second part of the question got not so clear answer. Various forms of reconstructed activities are discussed in report.

TH4-02 Abstract 07
Drilling the past - New approaches in dating hillforts in the Baltic region
Author - Dr. Jansen, Timo, ZBSA, Schleswig, Germany (Presenting author)
Co-author(s) - Rau, Vera, Institute of Archaeology RAS, Moscow, Russian Federation
Keywords: C14 dating, hillforts, Kaliningrad Region
Presentation Preference - Oral
Though most of the more than 2500 hillforts in the Baltic Region are mapped and discussed on a military-strategic background since the beginning of the archaeological research in the 19th century the number of intensively investigated monuments until now is surprisingly low. Especially the northern part of former East Prussia, nowadays as Kaliningradskaya Oblast a part of the Russian Federation, shows a significant lack of data. For instance, for the Sambian peninsula we know 90 hillforts, from which only 22 have been examined by surveys and only 7 have been partly excavated. In addition only a few excavation results have been comprehensively published.
In particular, the dating of the monuments is mostly based on theoretical considerations and studies of written sources of the Teutonic order, which only give evidence for their late existence, but not for the time of their construction. The existing typological models are confronted with the same problem of missing of absolute dates. Precise dating supported by natural sciences such
as 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 Scandanavian Archaeology in Schleswig and the Museum of Prehistory and Early History in Berlin and financed by the Academy of Sciences and literature Mainz, the author developed a new strategy for the dating of hillforts. Using a motor driven drilling equipment for sampling datable material, especially for Radio-Carbon-analysis, the ramparts of several hillforts in Lithuania and Russia have recently been investigated.

The paper gives an overview on the methodology and presents first results of the recent investigations.

TH4-02 Abstract 8
Reconsidering early hillforts in the East Baltic: conflicts and metallurgy
Author - Podenas, Vytenis, National Museum of Lithuania, Vilnius, Lithuania (Presenting author)
Keywords: behavioral archaeology, early hillforts, spatial analysis
Presentation Preference - Oral
Recent research of archaeological finds and new discoveries in the Lithuanian museums encourage reconsidering the cultural phenomenon of emergence of hillforts in the Late Bronze Age. The basic assumption of this paper is that the emergence of hillforts are a behavioral expression of prehistoric conflicts. A contemporaneous process of appearance of locally executed metallurgy in the East Baltic region concentrates in hillforts as well. Thus making the two practices comparable.

With application of behavioral archaeology theory, the research of the formation processes of Narkūnai “Dūnas” hillfort 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, Ridala and Krūtuva hillforts. In addition, distribution of early hillforts and early metallurgical activities in the East Baltic region and its chronological character are analyzed.

Typologically most of the earliest finds from the hillforts are attributed to PN-VI, with exception to the bone pins with nail-shaped head and Majplė type bronze pin that indicate a possible end of PIII. Casting moulds for socketed axes from Narkūnai, Garniai I, Vosgėliai, Sokiškiai and Brikuļi hillforts, and casting molds for spearheads from Asva, Brikuļi and Krūtuva hillforts are one of the earliest evidences, dated to PN-VI, of locally executed metallurgy in East Baltic region. The historiographical classic route of Daugava river seems to attract most of the early metallworkers. Casting moulds for Māļā type socketed axes are an indication of the existence of metallurgical activities in the hillforts. The latter casting moulds, like the rest of the technical ceramics types, are scarce, with similar amounts in Narkūnai and Krūtuva hillforts and one newly found in the National Museum of Lithuania from Gāmalti hillfort. However, the Māļā-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 Akozino-type axes. Furthermore, spatial analysis of Narkūnai hillfort technical ceramics indicate that the Māļā-type bronze axes had been casted on two different occasions, therefore making some ground for the itinerant metalworkers’ hypothesis. The aim of the paper is to reconsider the emergence and character of early hillforts in the East Baltic region focusing on the spatial analysis of bone, ceramic and metal artefacts, and the emergence of locally executed metallurgy as a relatable process.

TH4-02 Abstract 9
Late Bronze Age hillforts in Pomerania: an overlooked problem
Author - Niedźwiadek, Kamil, University of Gdańsk, Gdańsk, Poland (Presenting author)
Keywords: hillforts, Late Bronze Age, Pomerania
Presentation Preference - Oral
Although hillforts identified with Lusatian culture, from the end of the Bronze Age and beginning of the Iron Age appear in vast areas of Poland, especially in Western Pomerania, this subject is surprisingly, especially taking into account relatively numerous appearances of hillforts in Great Poland that is a region directly neighbouring with Pomerania from the south. On the other hand, investigations conducted in the 1960s to verify Pomeranian hillforts described as originating from Early Medieval and Medieval Period resulted in detecting at least at a dozen sites with materials from the latter Bronze Age.

The aim of this paper is to introduce the problem of alleged presence of Lusatian culture hillforts in the central part of Poland 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. Król, 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. Twelwe 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 2010’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 geochronological methods were undertaken. Multiple methods such as magnetic gammadicity, earth resistance, aerial prospection, photoplate prospection with a simplified field method, analysis of archival aerial data, airmaioa laser scanning, intensive analytical field walking, RTX 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 Wrów and Rijeka, a developed moat system in Rozprze, a previously unknown second, smaller ring-fort in Stare Bioszcowo. Traces of open settlements were also detected in the close vicinity of the strongholds. In each case the applied methodology helped to specify environmental determinants of settlement’s situation. The studies in Rozprze (ca. 60 km south from Lodz) were a prime example of new data categories that non-invasive approaches bring forth. Field was excavated in 1960’s but reevaluation of previous knowledge is now necessary. Remains of the Rozprze ring-fort defensive system are poorly preserved but still visible in the field as earthworks. Currently, the site occupies an area covered with meadows and fallow fields situated between the contemporary main channel of Lucjawa and Rajská rier in the central part of valley floor, but on the Plesnianski aluvial terrace remnant. Non-destructive surveys of the ring-fort surrounding were carried out in 2013-2015. In 2015 the small-scale excavation phase began, combined with complex palaeoenvironmental research. It helped to detect the presence of a developed system of moats and ramparts which appeared to be a palimpsest composed mainly of elements of a late medieval moat and barzony residence, which replaced an older, early medieval fortification. 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 fill of gypa and peat and partially inorganic deposits with rich remains of woods as well as other organic materials. The results correspond to various geophysical anomalies and crop marks documented during aerial reconnaissance.

Acknowledgements. This research project was financed by three one-year grants from The Ministry of Culture and National Heritage No. 01615/13/FPK/NID (2013), 4962/14/FPK/NID (2014), 4962/14/FPK/NID (2015) and by a grant from the National Science Centre based on the decision No. “DEC-2013/11/B/H33/03785” (2014-2017).

TH4-02 Abstract 11
Is Hollenstedt the Carolingian Holundstedi from 804 AD? New contributions to an old controversy
Author - Dr. Schneeweiss, Jens, Institute for the History of Material Culture RAS, Saint Petersburg, Russian Federation (Presenting author)
Co-author(s) - Dr. Brandt, Jochen, Archäologisches Museum Hamburg/Helmsmuseum, Hamburg, Germany
Keywords: Carolingian Border, ceramics, dendrochronology
Presentation Preference - Oral
The stronghold „Ate 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 Godfred in 804 AD. It was partly destroyed and then excavated in the late 1960s and 1970s. Since that time there is no consensus about the dating and the related interpretation of the site, which is ranging between the early 9th and 10th c. AD. This question is of major importance not only for the historical interpretation of the site but especially for the understanding of the ceramic finds. The excavations at Hollenstedt revealed a unique complex of pottery showing both Saxonian and Slavonic influences. The solution to the dating problem can establish Hollenstedt as a reference site for those “hybrid” ceramics. In autumn 2014 recent research including excavation and off-site investigation provided new data that are presented in the paper. They prove the erection of the fortification not earlier than in the late 9th c. AD. Moreover, the data require a re-interpretation of the whole situation, described with the passage “... in loco, qui dicitur Holundsteti” in the Royal Frankish Annals in 804 AD.
The study deals with the sites of the early Iron Age in the area between the Oka and Volga (East European Plain). This area was inhabited by tribes of the so-called Dyakovo culture. The remains of the fortifications of these settlements are the ramparts and ditches located on the residential area and the perimeter of the escarpments - construction settlements on the slopes. Number of lines of fortifications on each settlement varies. Usually it is 1-3 shaft and ditch. With the help of GIS analysis to determine the spatial patterns of the fortifications on the location of the ancient city. This study is to determine the functionality of the ramparts and moats, define local cultural centers. The research considered the organization of space in the settlements Dyakovo culture from the 8th century BC to the 7th century AD. The beginning of D’yakov culture hill-forts dated to the end of sub-boreal climatic period which is characterized by climate cooling, compared with the previous, and the change of deciduous forests with fir. This period continuous to 500’s BC and covers the first phase of life in the hill-fort. Next climatic period Subatlantic characterized by even more cooling and moistening climate. It is falls on top of the second and third stages of life on the hill-forts. All settlements were divided into three layers corresponding chronological periodization. Stage 1 - 8th century BC - 6th century BC; stage 2 - 5th century BC - 2nd century BC; stage 3 – 1st century - 7th century AD. The study deals with the sites of the early Iron Age hillforts Dyakovo culture.
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)

Digital re-construction of a Bronze Age stone wall enclosure and the landscape at Lina Mire, Gotland

Author - Associate Prof. Wallin, Paul, Uppsala Universitet, Uppsala, Sweden (Presenting author)

The Late Bronze Age, from around 1200 BC, was a time of significant cultural changes in Lithuania and in the whole East Baltic Region, especially in the coastal zone and around Daugava River. A new culture elements, such as some type of graves, pre-Celtic fields, cup-marked stones, stone enclosures, metal artefacts (Mlar type axes, miniature daggers and others) shows contacts and interactions in the Baltic sea Region. Some of new culture elements are the result of external influences from coastal zones of the western and southern Baltics. Distribution of new type of sites and artefacts suggests communication networks in the Baltic Sea Region. One of the trade route was established at the beginning of the first millennium BC and functioned between central Sweden, Gotland, east Baltic Region (Daugava route) and northeast Russia in the first half of the first millennium BC.

The aim of the paper is to discuss communication networks and nature and scale of interactions in the Baltic Sea Region in the Late Bronze Age.

Presentation Preference - Oral
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, Early Eastern Baltic. Yet, linguistic evidence in the face of numerous so-called unnecessary or luxury Baltic loanwords in Finnic clearly shows that the contacts between two groups from different language families were really dense and long-lasting, and even mixed settlement with bilingual everyday communication must have been widespread. This circumstance provides every good reason to think that material cultures of Finnic and at least one part of the Baltic-speaking populations were not distinguishable from each other. The presentation is an attempt to search for such a period, region, and material culture that could correspond to linguistic – that is, non-material – evidence of a mixed bilingual population.

TH4-04 Abstract 08
Landscape transformations at the turn of Bronze and Iron Age at the southern coast of Baltic Sea

Author - Niedźwiedzka, Kamil, University of Gdańsk, Gdańsk, Poland (Presenting author)
Keywords: Eastern Pomerania, human impact, Pomeranian culture
Presentation Preference - Oral

According to the archaeological data, intensive cultural changes took place in Eastern Pomerania (Northern Poland) at the end of the Bronze Age and at the beginning of Iron Age. From the point of view of traditional archaeology, these changes were connected with the origin of Pomeranian culture, which had developed on the background of local group of Lusatian culture, identified with Umfield tradition. Appearance of Pomeranian culture was tied with new patterns in burial rite: people started to put ashes of their deceased in impressively large urns with images of faces (so-called face urns) which afterwards were buried in a cold grave. In contrast to the previous rite, Pomeranian culture cemeteries were smaller but more numerous - they consisted 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, based on the pollen analyses it is visible that the changes were not so strong on the natural environment, what can be linked with their economic activity.

The main aim of this paper will be presenting endeavour undertaken to reconstruct natural environment together with the cultural landscape of Eastern Pomerania and attempt to answer the question - how intense and what kind of influence on the local surroundings had societies from the Late Bronze and Early Iron Age.

It is obvious that new tools which are available for archaeologists, such as GIS software, LiDAR data, modern aerial photography, together with results of paleoecological studies offer a significant support in researches conducted on the Late Bronze and Early Iron Age landscape of Eastern Pomerania. It could also give a good evidence to present described changes from a wider – cultural, social, and environmental perspective.

TH4-04 Abstract 09
Mid-Pre-Roman military impact on the northern Eastern Baltic

Author - Professor Lang, Valter, 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. 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. Radiocarbon dates indicate that the hill forts in question were used at some point between the fourth and the first century BC.

There are some interesting finds that can be probably 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 steppes and forest areas and were characteristic items of the Scythians from the 6th – 4th centuries BC. In the eastern Baltic region they have been found mostly as isolated finds, but some have come to daylight from cemeteries and some from hoards; they should be dated from the middle and the latter part of the Pre-Roman Iron Age. Another type of artefacts is a shepherd’s crook pin – these ornaments reached Estonia approximately at the same time and they became very popular during the late Pre-Roman Iron Age and after that. The pins have mostly been found from cemeteries while in some graves they were associated with (big battle) knives of iron. Similarly to the narrow-bladed iron axes, shepherd’s crook pins also spread to the northern Eastern Baltic from the south-eastern direction.

It seems rather plausible that the fortifications, iron (battle) axes, and shepherd’s crook pins reflect different aspects of the same process, which most likely involved troubled times and even some military impact. It is likely that some groups of invaders of Indo-European or Baltic-Slavic origin may have infiltrated into the Finnic population during this process.

TH4-04 Abstract 10
Crown Torque from Jamlitz

Author - Vorotinskaya, Larissa, The State Hermitage Museum, St.Petersburg, Russian Federation (Presenting author)
Keywords: Germany, Kronenhaltringe, spectral analysis
Presentation Preference - Poster

The State Hermitage keeps the crown torque from Jamlitz, Uckermark, north-eastern Germany. It had been found by accident while plowing a field, then bought in 1925, and subsequently kept by the Berlin Museum (Staatliche Museen zu Berlin NI II 10965). Today, the torque is one of the so-called Kronenhaltringe, mainly found in Denmark and Northern Germany. The few findings of such crown torques are known to have been made in Poland, Romania and Ukraine. An accumulation of at least seven items was discovered in the area of Leski and Grabyia villages in Polesyse, Chernigiv Region. Nearly in all cases, the findings were made in swampy areas and were apparently of votive nature. Apparently, these items belong to the German Jastorf Culture that existed in Northern Germany and Denmark. In Eastern Europe, such findings are probably due to the relocation of the Germans to the east.

The Jamlitz crown torque is type IV according to Jochens Brandt’s classification and probably dates back to Step C1 according to M. Shchukin (i.e. the last quarter of the 3rd century BC – first half of the 2nd century BC). According to Bjorn Rauchfuss, the torque belongs to shape 2: Crown torques with an oval, almost quadrangular cross-section.

Parts of the Jamlitz torque and the pivot pin were cast from wax models. The hole for the pin was made in the wax model and subsequently refined on castings. The casting was followed by further finishing. Obviously, this torque was originally defective, since the lock does not close, and parts of the lock are poorly fit to each other. The torque opens up and cannot be used for its designated purpose. This is characteristic of the Jamlitz torque. Similar items from Polesyse close perfectly, and the lock keeps the parts of the ring together.

The Department for Scientific and Technical Examination at the State Hermitage carried out spectral analysis of the Jamlitz crown torque’s metal using a Bruker ArtTAX X-ray fluorescence spectrometer. The torque is made of tin bronze with a considerable admixture of lead.

This data is consistent with that of the analysis of the crown torques from Zalesy (Ternopil Region, Ukraine). Lochstedt (Pommerland, Kaliningrad Region) and Mecklenburg, with the ratio between the main elements used in the metal alloy (copper, tin and lead) varying to a rather large degree.

TH4-04 Abstract 11
The Early Roman Iron Age site at Elinimnäti, Rauma Finland

Author - PhD Uotila, Kari, Muurutukimu, Kaarina, Finland (Presenting author)
Keywords: digital documentation, early roman, iron finds
Presentation Preference - Poster

During the years 201-2015 of field studies both ground-penetrating radar and aerial photographing with a drone were tested. Documenting of the finds 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 finds 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 cauldrons. Based on the total amount of cauldrons can be estimated to have been about 300 and about 200 of these have been man made. From between the stone mounds a concentration of over 2500 mortar-pottery shards was found. This has been interpreted as a part of a settlement site. In this area also pieces of burned bone were excavated. From these bones of fish, seal and one bone from either a sheep or a goat were identified. Macrofossils 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 cauldron located at the highest outcrop of rock in the area. The cauldron was covered with red sandstone slabs. There was also another cauldron 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.
Archaeology of 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): OH, 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.

Keywords: burial rituals, Pre-Roman Iron Age

TH4-05 Abstract 01
Extraordinary in death – the Hoby graves

Author: Dr. Blankenfeldt, Ruth, Zentrum für Baltische und Skandinavische Archäologie, Schleswig, Germany (Presenting author)
Keywords: High status graves, Local communities, Settlement
Presentation Preference: Oral

A richly furnished inhumation grave dating from the Early Roman Iron Age was discovered in 1920 at Hoby, Western Lolland, Denmark. The extraordinary ensemble of grave goods encompasses tableware and a drinking set of Italian origin, two unique silver beakers showing scenes from Homer’s Iliad and Germanic items made of bronzes 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.

Keywords: Exceptional graves, Local communities, Settlement

TH4-05 Abstract 02
Extraordinary in Life - the Hoby Settlement

Author: Curator Klingenborg, Susanne, National Museum of Denmark, Copenhagen, Denmark (Presenting author)
Keywords: Activity area, Settlement structure
Presentation Preference: Oral

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.

Keywords: burial rituals, Pre-Roman Iron Age
In Holy on Lolland, a chieftain's grave from the Early Roman Iron Age was found in 1920. The grave is one of the richest dating back to this period from Northern Europe. In 1999, pottery and black soil were observed in the area NW of this rich grave, and more intensive research in 2003–2005 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 100x105 meters (328x3492 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 large 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 matter and graves. 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, economical, and cultural perspectives will be presented. Finally, the results are compared to some of the contemporary settlements from current Danish territory.

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TH4-05 Abstract 03

**Rosenholmvej: a central site in Middle Jutland**

**Author:** Olsen, Martin, Winther, Museum Midtjylland; Herring, Denmark (Presenting author)

**Keywords:** Central settlement, Løsbørggravers

**Presentation Preference:** Oral

Central settlement and hinterland – life and death in the 1st 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 are associated with 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 “highpoint” in period B1a. At this time a grave yard is constructed which includes a number of extraordinary rich graves with grave goods and constructions that place their origin徇 northwestern Jutland. It links them to other regional groups in Denmark, Europe and to the political turbulence we see in those years. At the same time, this group of people expresses their status in the construction of a “farmstead” that is in every respect extraordinary, with features that both illustrate their social, regional and international status.

Additionally, we do have a number of sites in the “hinterland”, some are excavated and others known through geophysical surveys. This group includes both settlements as well as graveyards. Hereby we get an insight into an organization that is highly synchronized.

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TH4-05 Abstract 04

**Studying the Iron Age Settlements in Lithuania: Current Issues and Future Directions**

**Author:** Dr. Vengalis, Rokas, Lithuanian History Institute, Vilnius, Lithuania (Presenting author)

**Keywords:** prehistoric settlements, settlement pattern, survey

**Presentation Preference:** Oral

The research of the Iron Age in Lithuania (which is dated to the 1st millennium AD, according to the periodization of this region) was focused only on the ethno-history for a long time and that was the reason why the attention of archaeologists was directed to the studies of the burial sites. Because of such trend we could say very little about communities of that period, except for their ethnicity. There was some knowledge about the social structure, trade directions and ideology as well, but primarily there was no information about the subsistence, the economy, settlement patterns and other themes. In recent decades this trend begins to change little by little – researchers begin to take interest in topics which were not analyzed before and at the same time the attention is drawn to the fact that the material which we collected up to now does not allow to analyze the newly emerging issues. This report presents the research problems concerning Iron Age settlements in Lithuania and provides the examples of how these studies, though still sparse, significantly change the understanding of the these communities.

There’s 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 an example from Kernavė settlement which shows that we can obtain valuable data applying new methods by re-analyzing the material of research from previous decades. The application of spatial analysis shows quite different settlement structure than was thought previously – the settlement was not solid but consisted of segregated farmsteads, which changed their location over the course of time. Such data allows to draw some conclusions about the social structure of communities, subsistence, economy etc. and raise further questions for future research. Considering settlement pattern analysis, the main problem is associated with the representativity of archaeological sites. Until now, no one ever conducted purposeful surveys looking for the settlement sites in Lithuania and only several of such sites were registered. Settlement pattern was basically reconstructed by burial sites, therefore the impression of a very sparse settlement of that period became dominant. The recent survey, which focused on the search for settlement sites in Kernave region, indicated that in fact the situation was quite different. These initial surveys showed that the settlement pattern was at least somewhat denser. This now provides for the re-evaluation of density, settlements size, stability, and similar aspects. This report concludes that the systematic settlement research in Lithuania, even though they are still in the initial stage, contribute very significantly to the overall formation of the image of this period, which until now was based essentially only on data from burial sites. In order to achieve tangible results, the wide range of information not limited to certain type of sites must be used.

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TH4-05 Abstract 05

**An attempt to define ratio of barrow cemetery and settlement site in term of community size**

**Author:** Dr. Stritiniené, Andrius, Lithuanian History Institute, Vilnius, Lithuania (Presenting author)

**Keywords:** barrow cemetery, rural communities, settlement site

**Presentation Preference:** Oral

The material culture of the Iron Age represented by the artefacts coming from burial monuments is relatively well known for the archaeologists; however, information on the local communities which left this legacy is rather scarce. One of the main characteristics describing any human community is its size. Usually, the size of the community is identified on the basis of the data derived from the burial monuments. However, there are other methods of establishing the size of the community on the micro-level, as well; for instance, they include area estimates or dwelling-based estimates. In ideal cases, data derived from different sites forming archaeological complexes should be correlated for the demographical analysis. The region of eastern Lithuania is an area with very frequent occurrence of barrow cemeteries of different size, ranging from one to tens and hundreds of mounds, which suggests (apart from being impacted by destruction) the communities of different size. On the contrary, the number of known settlement sites is rather low. The settlement research is still very fragmented and limited to small-scale excavation producing small and biased samples. At best, only the location of a settlement site can be identified and approximate layout into the network is going into the network, introducing a low level of resolution. The total site space remains un-established for most cases. As a result the ratio of barrow cemeteries and settlement sites has been rarely investigated not only in terms of community size, but even how to mutually interpret the overall pattern of evidence.

This presentation attempts to contribute to the issue of estimating the size of rural communities not so much addressing the absolute index, but rather seeking to prompt the comparative studies of data from different types of archaeological sites. To illustrate the approach, the archaeological complexes consisting of a barrow cemetery and a settlement site were distinguished in the European Iron Age Barrow Culture and one relatively well preserved and excavated complex was chosen for the further case study. Analytical tasks were as follows: 1) to define the possible extent of the settlement site by combining tradition archaeological methods with geo-archaeological research data and micro-topography; 2) to assess the resultant area against the density coefficient, deriving this coefficient: a) from the data of excavated barrow cemeteries, b) on analogy with the absolute index, but rather seeking to prompt the comparative studies of data from different types of archaeological sites. To illustrate the approach, the archaeological complexes consisting of a barrow cemetery and a settlement site were distinguished in the European Iron Age Barrow Culture and one relatively well preserved and excavated complex was chosen for the further case study. Analytical tasks were as follows: 1) to define the possible extent of the settlement site by combining tradition archaeo logical methods with geo-archaeological research data and micro-topography; 2) to assess the resultant area against the density coefficient, deriving this coefficient: a) from the data of excavated barrow cemeteries, b) on analogy with traditional archaeo logical methods with geo-archaeological research data and micro-topography.

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TH4-05 Abstract 06

**Relation or isolation? Spaces of the living and the dead in the Iron Age East Lithuania**

**Author:** Dr. Kuria, Laurynas, Lithuanian Institute of History, Vilnius, Lithuania (Presenting author)

**Keywords:** barrow cemetery, East Lithuania, hillfort

**Presentation Preference:** Oral

The cultural landscape of the Roman period – Viking age (or the Iron Age, c. 5/4th–11/12th centuries AD) East Lithuania is represented mainly by barrow cemeteries and hillforts. Presently, over 500 barrow cemeteries and over 350 hillforts are known in the territory of the so-called East Lithuanian barrow culture (this is only in the territory of the present-day Lithuania, as precise data about Northwestern Belarus are lacking), and there had been many more in the past.

Both barrow cemeteries and hillforts have received a great deal of attention in Lithuanian archaeology, but until now they are viewed as isolated rather than related to each other. In other words, the spaces of the living and the dead are perceived as two different worlds rather than an arena of permanent interaction. The fact that very few flat settlements of this period are yet known does not contribute to research, but this can be advanced only by large-scale surveys, and this is a task for the near future. Another barrier is the lack of research on a micro-regional level aimed at complexes of hillforts and barrow cemeteries. Rather rare instances of barrow cemeteries being located near hillforts have suggested a stereotype that spatial distributions of both types of the sites are rather independent.
Searching for links between artefacts from areas of prehistoric dwelling sites and burial grounds

Author - Dr. Banyte Rowell (Rowell), Rasa, Lithuanian Institute of History, Vilnius, Lithuania (Presenting author)

Keywords: burial grounds, dwelling sites, Roman Period

Presentation Preference - Oral

This paper surveys categories of finds that were found in Roman Iron Age dwelling sites and in burial grounds in Lithuania. Grave-goods belong to the sphere of sacrum where property donated for the dead might reflect a distorted picture of reality. Grave-goods are the result of creative activity performed in “real life”. Therefore finds from dwelling sites have great importance for connecting artefacts from burial grounds back to sphere of profanum.

We can seek answers to where the production of tools and ornaments took place. Another interesting question is whether the regional shapes/types of artefacts, usually placed on maps according a database of burial sites are distributed in a similar way in the settlement pattern of the same territory. Such a comparison raises the question of whether regional ornament styles were created under the influence of “the regional taste” of several artisans of a particular region and that process reflects the existence of a regional identity. Or perhaps these regional features had a more practical origin - the distribution of particular types in particular regions was outcome of network of trade and range of influence of production centres on the market.

West Lithuania was an area where Roman coins were placed in graves during the Late Roman period (end of phase C1a – phase C1b). This tradition testifies to the importance of the Lithuanian coastline for the maintenance of far-flung contacts with the Roman provinces. It is interesting that Roman coins have been found in the cultural layers of hillforts and settlements in Žemaitija and Central, Southern and Eastern Lithuania while the tradition of placing Roman coins in burials is almost absent. The latter finds testify to the circulation of Roman coins in all regions of Lithuania and such finds in dwelling sites leads us to consider their function in everyday life. Roman-Iron Age finds in dwelling sites in Eastern Lithuania have especial importance because the database of burial sites from this period is still small. They reflect the fact that Eastern Lithuania, despite its location in the Balts hinterland, was a region where numerous cultural influences from neighboring areas and the European Barbaricum made an impression upon local traditions.

Summarising, it is possible to state that a comparison of finds from dwelling sites and burial grounds may provide new insights into the prehistory of the Balts during the Roman period. Therefore it is important to integrate the databases originating from the spheres of sacrum and profanum.

A changing community in north-east Estonia from 400 BC to 900 AD

Author - PhD student Olli, Maarja, University of Tartu, Tartu, Estonia (Presenting author)

Presentation Preference - Oral

Aakre Kivivare complex is an interesting archaeological site in north-east Estonia which was settled continuously over 1000 years during the Iron Age. There is a monumental stone grave, at least two settlement sites, a hill-fort with two stages and a possible flat cremation cemetery very near each other from different time periods.

It is possible to study the change of burial customs, cultural and trade contacts as well as pieces of everyday life of the prehistoric community from the Pre-Roman Iron Age until the end of the Viking Age based on the Aakre Kivivare complex. Because most of the sites have been excavated, it can be assumed that the place was the centre of a bigger region during 1300 years. Therefore assumptions of a larger society of the time periods can also be made.

The chronology, characteristics of the monuments as well as items excavated from the sites will be discussed. Based on that, assumptions of the changing identity, religion and cultural and trade contacts of the community will be made.
CULTURAL ENCOUNTERS: PERSPECTIVES ON MOBILITY AND CULTURAL IDENTITIES IN THE BALTIC SEA REGION 4000 - 2300 BC

The mentioned time period in the North-European prehistory is very dynamic, and is acknowledged by three more significant subsistence economies. These economies are generally defined as to relate to different cultural groups and varying social customs: the farming Funnel Beakers, the seal hunting and fishing people of the Pitted Ware Culture, and the cattle herders of the Battle Axe Culture. Local and regional variations of these cultural groups and subsistence economies are present in all countries around the Baltic Sea region during this time period. Issues about the social relations and contacts between these different cultural expressions have for a long time been vividly discussed within archaeology. However, developed archaeological methods and new results from by example strontium isotope and ancient DNA-analyses, have revealed that the mobility among people around the Baltic Sea in prehistory appears to have been more intense than previously thought. What impact does developed archaeological methods and results generate on the traditional interpretations of cultural encounters? How could these results be related to the archaeological material? The issue is important from the perspective that the archaeological knowledge we produce, by necessity also must be open for scientific revision. This session, therefore, aims to explore and discuss developed perspectives that could challenge the traditional interpretations of cultural encounters and borders among cultural groups in the Baltic Sea region during 4000 - 2300 BC. The presentations in the session may enrich archaeology on a theoretical and methodological level, but will also: have the possibility to influence the wider cultural discussions concerning the contemporary constructions of cultural identities in Europe. The outcome of this session may also provide stronger arguments for a necessary understanding of the conditions of the contemporary and multicultural Europe.

Ski Archaeology or tracking genesis & evolution of mobility technology across Prehistoric Eurasia

The evidence of mobility in Post-Glacial northern Europe and Asia is well established. More than 200 ski, pole, sled, canoe finds and rock carving motives, show the Eurasian continent from Northern Europe 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) woodworked transport means, for hunters-gatherers or early nomadic herders and their survival equipment, through new landscapes to adapt.

In this paper a modification is made to Marek Zvelebil’s Homo habitus model, were used to verify the hypothesis that for the area caused an emergence of numerous multilayer settlements of hunters-gatherers. Archaeological material of Dubičiai, Nemunas, Narva and Combe-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 archaeological patterns, it is possible to extract and date different complexes, define activities of subsistence economy and behavior of the societies.

Pottery traditions and cultural processes in the Gulf of Finland region in the 3 mil. BC

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, EM, 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.
Combs 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 charcoal and asphalt is common with thick walls of the vessels and shallow ornamentation, typical for Karelia and south-eastern Finland. Another component is organic temper (leather with shields) and mostly comb ornamentation which is most probably characteristic for the upper Volga region. Identification of contacts during the EMF resulted in a variety of Comb Ware tradition - and the relative ease and speed of the spread of these it is an evidence of probable relatives of their bearers.

In the Il 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 “Anadon” assemblage. At the same time there are some “hybridous” vessels, that have some features of Comb Ware: imprints of comb stamp and pits, decorated and cut inside rim. This is probably the case when Corded Ware tradition was influenced by the local one and this can be seen in exterior imitation on the vessels.

When it is worth to mention, that different variants of Comb Ware tradition very are close to each other in one of most conservative aspect of the pottery tradition - in modeling 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 already proves the fact that Corded Ware was just slightly influenced by the Cord Ware - so we can conclude that groups of people, bearers of these traditions, did not have such close contacts as those of Comb Ware.

TH4-06 Abstract 05
Changing Perspectives- Neolithic pottery on the Åland Islands and the Baltic
Author: Dr. Brønson, Torbjörn, Ceramik Studies, Sweden, Nyhamnsläge, Sweden (Presenting author)
Co-author(s): - Stenbäck, Niklas, Societas Archaeologica Upsaliensis SAU, Uppsala, Sweden
Keywords: Åland, Pitted ware Kiikais Comb ceramics, Pottery
Presentation Preference - Oral

The Åland Islands location in the Baltic Sea has been of importance for movements of people and ideas throughout prehistory. This is reflected by the material culture and pottery traditions on the Islands. Based on typologies and their respective areas of spread, the Åland Neolithic has traditionally been explained by mobility and migration. This study challenges the traditional interpretations by examining if there is a local craftmanship and technology in the different types of ceramics on Åland. The methods used are ICP analyses and analysis of thin sections of the clay in the vessels. The study includes early (Ka I:1) and late (Ka II) Comb ceramics, Jettböle I and II type of Swedish pitted ware and Kiikais ceramics. Clay-ash and sand are detected as mixed with influences from both comb- and pitted ware, representing the succession between traditions. It is important to study the technology of the mixed pots and if they e.g. were tempered with limestone. Preliminary results show that there is a local technological continuity in the Neolithic ceramics traditions on Åland, visible in the preferred clay. A chronological difference in the use of temper suggests different cultural preferences. Lime-temper as temper is more or less synonymous with pitted ware, and it is important to analyse if there are limestone in the ware in the pots belonging to the other cultural groups for comparison and contextualisation of the results. The ICP analyses have given us answers that some of the artefacts, as e.g. a clay figurine seems to have been of non-Åland origin, and the question is if this figurine originates in mainland Finland or Sweden.

The Åland ceramics have been compared to ceramics from mainland Sweden and Finland and we will present the results of this study at the conference.

TH4-06 Abstract 08
The enigmatic Dolmen on the Island of Gotland
Author: - Frasier, Magdalena, Uppsala University, Campus Gotland, Visby, Sweden (Presenting author)
Co-author(s): - Sanchez Quinto, Federico, Evolutionary Biology Centre, Uppsala University, Uppsala, Sweden
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Co-author(s): - Jakobsson, Mattias, Evolutionary Biology Centre, Uppsala University, Uppsala, Sweden
Keywords: Genomics, PWC, TRB
Presentation Preference - Oral

The Årsavre Dolmen in Tolfta Parish on Gotland is the eastern most of its kind in Scandinavia. Dolmens and passage graves in Northern mainland Europe are associated with the Funnel Beaker culture (TRB) and activity sites with TRB pottery have been located on the Island from the Early Neolithic time period. We present new radiocarbon dating and isotope results, which show that the Dolmen was used for an extended time period, yet contemporary archaeological remains from the Funnel Beaker culture are scarce on the Island at a time when the Pitted Ware Culture was widespread along the coastal areas. Previous genetic research has shown that hunter-gather individuals from the Middle Neolithnic Pitiked Ware Culture on Gotland had different biogeographic affinity to that of contemporary TRB individuals from the Swedish mainland (Bikgland et al. 2012; 2014). Here we use genomics to investigate the relationship of individuals from these two different cultural contexts on the same Island, over time.

TH4-06 Abstract 09
Re-thinking Bourdieu: New Perspectives on the Pitted Ware Culture on Gotland in the MiddleNeolithic
Author: - Andersson, Anna-Carin, University of Gothenburg, Gothenburg, Sweden (Presenting author)
Keywords: Bourdieu, Method, Pitted Ware Culture
Presentation Preference - Oral

This paper relates to the issue: what impact does developed archaeological methods and results generate on traditional interpretations of mobility and cultural encounters? The aim is to present a new method of interpretation, which I have developed in my thesis. The method has its foundation in a re-thinking and an archaeological adaption of the concepts and reasoning of the French sociologist Pierre Bourdieu. Such application and adaption of the concepts of Bourdieu on an archaeological material as is suggested, has previously never been done before. Though the reasoning of Bourdieu have been used in studies of architectural material, an examination of a number of these earlier studies surprisingly revealed a simplified use of the concepts, where insufficient considerations have been taken to the complexity of Bourdieu’s reasoning. The most common approach in previous research is to only use Bourdieu’s concept of Habitus, which is used without contextualization and according to the ad hoc principle. Through an adaption of the concepts in accordance with a contextualisation of the living conditions and the
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 closer and contemporaneous people from the Pitted Ware. This genetic variation seems to mirror subsistence strategies and material culture more closely than geographical proximity. This is well in accordance with previously published stable isotope data indicating differences in the dietary patterns between the two groups. This implies that the hypothesis of Pitted Ware hunter-gatherers being descendents from the Funnel Beaker population is highly unlikely, considering that the two groups are as differentiated as the most distant populations of Europe today. Recently, it has also been shown that individuals from a Corded Ware/Battle Axe context, which post-dates the Funnel Beaker farmers and were partly contemporaneous with the Pitted Ware hunter-gatherers, display yet another genomic signature compared to those of the Funnel Beaker and Pitted Ware people. Corded Ware individuals from Sweden, Estonia and Germany comprise of genetic components from western hunter-gatherers, from early farmers, as well as from Yamnaya herders.

The picture of the pre-historic genomic landscape in the Baltic Sea region is still quite rough and will benefit from increased amounts of genomic data from wider geographical areas and chronologies. Our knowledge about variation within the different groups that have been genetically characterized, for the Funnel Beaker people, display yet another genomic signature compared to those of the Corded Ware and Battle Axe. The question raised in the conference and aim to open up for cross-disciplinary discussions of the results.

The settlements of the Waldburg type and the origin of Primorskaya Culture

Keywords: Corded Ware, Primorskaya Culture, Settlement archeology

The questions, related to the genesis of Primorskaya Corded Ware Culture, still remain the most difficult and complicated. It is ultimately determined by the lack of research in some regions.

The archeological research, started in the 90s of the XX century, allowed us to define a particular group of settlements on the coast of the Vistula Bay (Pribrezhnoye, Ushakovo 1-5) – the settlements of the Waldburg type. Their equipment greatly differs from the previously known Primorskaya Culture complexes.

Unlike many other Primorskaya Culture settlements, the remains of the deepened up to 0.60 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 IIb of 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.

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**TH4-07**

**PREHISTORIC FORAGERS IN THE NORTHERN FOREST ZONE: ISOTOPIC CLUES TO THEIR CHRONOLOGY, DIETS AND MOBILITY**

Friday, 2 September 2016, 09:00-13:00

Faculty of Philology, Room K.Donelaitis

**Author** - Tõrv, Mari, Tartu, Estonia (Presenting author)

**Co-author(s)** - Meadows, John, Centre for Baltic and Scandinavian Archaeology, Germany; Germany (Presenting author)

**Co-author(s)** - Erikson, Gunilla, Department of Archaeology and Classical Studies, Stockholm University, Stockholm, Sweden

**Co-author(s)** - Lidén, Kerstin, Department of Archaeology and Classical Studies, Stockholm University, Stockholm, Sweden

**Co-author(s)** - Lübke, Harald, Centre for Baltic and Scandinavian Archaeology (ZBSA), Schleswig, Germany

**Keywords**: Northern Forest Zone hunter-gatherer-fisher, radiocarbon dates, stable isotopes

**Presentation Preference** - Regular session

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 isotopic 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.

**TH4-07 Abstract 01**

Looking for patterns in prehistoric diets – is there an objective approach?

**Author** - Meadows, John, Centre for Baltic and Scandinavian Archaeology, Germany, Germany (Presenting author)

**Co-author(s)** - Bārzdātis, Valdis, Institute of Latvian History at the University of Latvia, Riga, Latvia

**Co-author(s)** - Lübke, Harald, Centre for Baltic and Scandinavian Archaeology, Germany

**Co-author(s)** - Zagarška, Ilga, Institute of Latvian History at the University of Latvia, Riga, Latvia

**Keywords**: diet reconstruction, stable isotopes

**Presentation Preference** - Oral

In recent years several programs have been developed and refined to reconstruct individual diets on the basis of stable isotope data, typically in terms of consumption of two or more isotopically distinct food groups. Instead of simply looking for statistically significant patterns in human stable isotope values, therefore, we may attempt to test whether food consumption patterns varied over time, geographically, between sexes or age groups, according to mortuary ritual, within an individual’s lifetime, etc. Such attempts often meet with scepticism because they require the relevant food groups to be defined, and appropriate values applied to parameters that cannot be measured directly, such as fractionation between diet and human isotope values. The identification of human groups for comparison (e.g. defining appropriate regional or chronological samples) is also subjective. Rather than ignore these questions, we investigate how sensitive our interpretations are to factors such as the software and parameter values used, periodisation, sample size, and statistical testing criteria. We use new and previously published isotopic results from prehistoric burials at Lake Būrtnieka, Latvia, to show which of the informed choices we have to make have the greatest impact on the final narrative.

**TH4-07 Abstract 02**

Mesolithic diversity in the Baltic region

**Author** - Dr. Eriksson, Gunilla, Archaeological Research Laboratory, Stockholm University, Stockholm, Sweden (Presenting author)

**Co-author(s)** - Lübke, Harald, Centre for Baltic and Scandinavian Archaeology (ZBSA), Schleswig, Germany

**Keywords**: Mesolithic, Motals, stable isotopes

**Presentation Preference** - Oral

Taking the two Mesolithic sites in Motals – Kanaljorden and Strandvågen – as a starting point, stable isotope data from a wide range of Mesolithic sites both east and west of the Baltic Sea will be discussed. The large variability in carbon, nitrogen, sulphur and strontium isotope values reflect not only the diversity in available resources, but also differences in mobility patterns and cultural choices, as well as chronological change.

**TH4-07 Abstract 03**

New Stable Isotope Analysis from Lake Lubans Stone Age sites, South-eastern Latvia

**Author** - Legzdina, Dardega, Institute of Latvian History, University of Latvia, Riga, Latvia (Presenting author)

**Co-author(s)** - Lee-Thorp, Julia, Research Laboratory for Archaeology and the History of Art, Oxford University, Oxford, United Kingdom

**Keywords**: animal bones, stable isotopes, Stone Age

**Presentation Preference** - Oral

A long-standing systematic archaeological research at the Lake Lubāns valley have revealed the region to be an area with a number of significant Stone Age settlements and burial grounds. So far, 27 Mesolithic and Neolithic sites have been detected, and in 18 of them archaeological excavations have been conducted. The excavations, starting from mid-20th century up to nowadays have provided a rich and diverse animal bone material from settlements, as well as human burials. However, there have been no previous attempts to approach the material with stable isotope analysis method.

In this paper we present animal bone carbon and nitrogen stable isotope analysis results from different sites and introduce a discussion about the local isotope ecology of the Lake Lubāns valley.

**TH4-07 Abstract 04**

How close is close?

Faunal baselines in the Eastern Baltic region

**Author** - Tõrv, Mari, University of Tartu, Tartu, Estonia (Presenting author)

**Keywords**: faunal baseline, hunter-gatherers, Eastern Baltic, stable carbon and nitrogen isotopes

**Presentation Preference** - Oral

Stable isotope analysis of carbon (δ13C) and nitrogen (δ15N) of human and faunal bone collagen from archaeological contexts is an established method to address questions of past diets, and mobility patterns. In the context of the Estonian Stone Age, only human bone collagen has been systematically targeted for stable isotope analysis. However, to comprehend and analyse the isotope ratios of human bone collagen, any particular site in detail, it is important to know faunal isotopic composition to provide a relevant temporal baseline. It is not a novel statement, but the question of “how close is close enough” still remains.

In the paper I will examine both the spatial and temporal requirements for a faunal baseline. The theoretical discussion will be complemented by examples from my own research on Estonian hunter-gatherers and published data from other hunter-gatherer sites in the Eastern Baltic.

**TH4-07 Abstract 05**

Diet and childhood residential mobility at Rinnukalns, Latvia, in the 4th millennium cal BC

**Author** - Meadows, John, Centre for Baltic and Scandinavian Archaeology, Germany, Germany (Presenting author)

**Keywords**: Mesolithic, Motals, stable isotopes

**Presentation Preference** - Oral

In the paper I will examine both the spatial and temporal requirements for a faunal baseline. The theoretical discussion will be complemented by examples from my own research on Estonian hunter-gatherers and published data from other hunter-gatherer sites in the Eastern Baltic.

**TH4-07 Abstract 06**

New Stable Isotope Analysis from Lake Lubans Stone Age sites, South-eastern Latvia

**Author** - Legzdina, Dardega, Institute of Latvian History, University of Latvia, Riga, Latvia (Presenting author)

**Co-author(s)** - Lidén, Kerstin, Archaeological Research Laboratory, Stockholm University, Stockholm, Sweden

**Keywords**: Mesolithic, Motals, stable isotopes

**Presentation Preference** - Oral

Taking the two Mesolithic sites in Motals – Kanaljorden and Strandvågen – as a starting point, stable isotope data from a wide range of Mesolithic sites both east and west of the Baltic Sea will be discussed. The large variability in carbon, nitrogen, sulphur and strontium isotope values reflect not only the diversity in available resources, but also differences in mobility patterns and cultural choices, as well as chronological change.
Co-author(s) - Törv, Mari, Institute of History and Archaeology, University of Tartu, Tartu, Estonia
Co-author(s) - Bützold, Volker, Institute of Latvian History at the University of Latvia, Riga, Latvia
Co-author(s) - Zaporska, Iga, Institute of Latvian History at the University of Latvia, Riga, Latvia
Keywords: dietary reservoir effects, freshwater resources, incremental sampling
Presentation Preference - Oral

The freshwater shell midden at Rūninkauzi, 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 middle of the 4th millennium cal BC. Dietary stable isotopes in bone collagen from the crania of 3 individuals buried in the midden, and also from 4 individuals dated to this period at the nearby Zvijnieki 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 Rūninkauzi 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.

The last decade saw increasing progress in the analysis of human remains by achaeometric methods. Here we present 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.

Presentation Preference - Oral

The Neolithization of the north European lowlands: Archaeometric results on human remains

Author - Dr. Plezona, Henry, German Archaeological Institute, Berlin, Germany (Presenting author)
Co-author(s) - Prof. Dr. Terberger, Thomas, Lower Saxony State Office for Cultural Heritage, Hanover, Germany
Co-author(s) - Lüth, Friedrich, 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 Neolithitic way of life halted at the northern margin of the loess distribution for almost an entire millennium, before in the late 5th and 4th millennia cal BC, the farming economy started to spread into the northern lowlands. The Funnel Beaker Culture plays a key role for the question of an intermingling of the last hunter-gatherers and the southern farmers: There are indications that in the north, local forager communities continued to exist alongside the newly arrived farmers for centuries. Further east, the foraging way of life formed the basis of subsistence even longer.

The last decade saw increasing progress in the analysis of human remains by 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.

Presentation Preference - Oral

Deconstructing the conception of pre-Neolithic farming in SE Baltic

Author - Dr. Pliškavičienė, Giedrié, Vilnius University, Vilnius, Lithuania (Presenting author)
Co-author(s) - Kisieliūnienė, Daiva, Nature research centre, Vilnius, Lithuania
Co-author(s) - Pliškavičius, Gytis, Lithuanian institute of History, Vilnius, Lithuania
Keywords: SE Baltic, Subneolithic, Subsistence
Presentation Preference - Oral

This paper is a critical evaluation of zooarchaeological, microbiological, palynological and archaeological data and their earlier interpretation in Lithuania, which served as the basis for constructing the concept of pre-Neolithic or Subneolithic low intensity agriculture and/or animal husbandry in the Eastern Baltic region. In addition, the paper presents the first direct AMS dates on remains of domestic plants and bones of domestic animals found in the Lithuanian Subneolithic and Neolithic settlements. According to the latest research, the substantial part of, or even the whole of the earlier “evidence” was wrongly forged because of the mistakes in the identification of plant and animal species and imprecise dating. The mistakes in dating were largely due to the ignorance of the water reservoir effect when dating bulk samples of lacustrine sediments, unrecognized of the impact of bioturbation and palimpsest on the formation of the archaeological strata, and low paid attention to stratigraphic and spatial documentation during very extensive excavations carried out in the second half of the 20th century. So far, there is no reliable evidence that domesticated plants and animals were adopted in Lithuania prior to the appearance of the Globular Amphora and Corded Ware cultures in 3200/2700 cal BC. However, that does not mean that new evidence cannot be obtained in the future, if direct AMS dating of plant and animal remains from Subneolithic contexts is to be continued, and if systematic macrobotanical analyses would eventually be made on samples from settlements in higher elevations, and not only from lakeshore settlements and fishing sites.

Presentation Preference - Oral

Zedmar Culture in the Light of 14C dates - Relating to Sub- and Neolithic Cultures in the SE Baltic

Author - Krziczk, Magdalena, Nicolaus Copernicus University in Toruń, Iława, Poland (Presenting author)
Keywords: Bayesian modelling, subneolithic, Zedmar culture
Presentation Preference - Oral

Zedmar Culture [later: ZC] is phenomenon which absorbs researchers from ca one hundred years. In spite of it still it is known not more than a few peat bog sites of mentioned archaeological unit in three areas separated with not very great distances in the Northeastern Poland and in the Kaliningrad Oblast. As of today it seems like the range of the ZC is impossible to determine credible. What is most riveting is to figure out its origins especially due to establish proveniences of pottery making. This is because it seems the ZC was one of those archaeological cultures wich mixed ceramic traditions (probably not only them) from both – agricultural and hunter-gatherers-fishers worlds.

To this day there is ca 50 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 epimonic 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 applying and understanding its results, mainly due to radiocarbon dating disadvantages. In case of the ZC peat bog site's stratigraphy is also an difficulty. Although after analyzing all of 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. To consider also Neolithic impact onto the ZC particularly the Funnel Beaker Culture group will have to be considered. This is why the future research of the ZC will be used in the study. Noticeable set of its radiocarbon dates constitutes one of the best backgronds for joining into discussion for pottery’s origin in the ZC.

Presentation Preference - Oral

Human occupation of the SE Baltic region: first trends from the middle- upper paleolithic transition

Author - Dr. Druzhchina, Olga, Uhystynets Museum of Nature and History, Kaliningrad Oblast, Russian Federation (Presenting author)
Co-author(s) - Molchokov, Anatoly, Research Laborotary for Quaternary Geochronology, Institute of Geology, Tallinn, Estonia
Keywords: Luminescence Dating (IR-OSL), Middle-Upper Palaeolithic, MIS 3
Presentation Preference - Poster

The territory of the south-eastern Baltic region might be described as lying on the margins of the classical Paleolithic world. No Middle and Upper 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 Bølling warming or Greenland interstadial sub-stage GI-1a, which began in northern Europe at about 14.7 cal ka BP. The recent discovery of traces of human occupation at the Ryadino-5 archaeological site in the Kaliningrad Oblast has raised questions about the origins of the first Europeans in the region.

The recently discovered site of the ZC was established through Bayesian chronology. Moreover, it is possible 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. To consider also Neolithic impact onto the ZC particularly the Funnel Beaker Culture group will have to be considered. This is why the future research of the ZC will be used in the study. Noticeable set of its radiocarbon dates constitutes one of the best backgrounds for joining into discussion for pottery’s origin in the ZC.

Presentation Preference - Oral

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Presentation Preference - Oral
Loose human bones from cultural layers at Zamostje 2, central Russia (c.6500–4000 cal BC)

Author - Töyr, Mari, University of Tartu, Tartu, Estonia (Presenting author)
Co-author(s) - Meidlares, John, Center of Baltic and Scandinavian Archaeology, Foundation of the Schiebel-Wohn, Schiebel, Germany
Co-author(s) - Lozovikaya, Olga, Peter the Great Museum of Anthropology and Ethnography (Kunstkamera), Russian Ac, St. Petersburg, Russian Federation
Co-author(s) - Moiseyev, Vyacheslav, Peter the Great Museum of Anthropology and Ethnography (Kunstkamera), Russian Ac, St. Petersburg, Russian Federation

Keywords: loose human bones, radiocarbon dating, stable isotopes, Zamostje, central Russia

Presentation Preference - Poster

Only 18 fragmentary human remains have been identified at Zamostje 2 (c. 6500–4000 cal BC), despite the excellent organic preservation conditions for organic preservation, and the recovery of millions of animal bones from the five cultural layers. Aside from a woman’s humerus, the human remains are all fragments of the cranial, mandible, or isolated teeth, including naturally shed deciduous teeth, representing at least 18 individuals, ranging in age from 0 to 75 years. Two cranial fragments have been dated by radiocarbon to the Late Mesolithic (acercamic) period (c. 6500–5900 cal BC), although one of the dated fragments was found in the Early Neolithic (Upper Volga ceramic) layer. Radiocarbon dating also allowed the measurement of dietary stable isotopes, which suggest only limited consumption of aquatic resources, despite the abundant artefactual and archaeozoological evidence that fishing was a central element of the Mesolithic subsistence economy, both at Zamostje and at other sites of this period.

One cranial fragment bears clear cutmarks demonstrating deliberate post-mortem removal of soft tissues, possibly in order to use it as a bowl or cup. Isotopically this individual shows no sign of having consumed aquatic species. Without a Mesolithic cemetery at Zamostje, it is unclear whether the culturally modified loose human bone belonged to an atypical individual, or whether the excellent preservation of fish remains and fishing structures gives an exaggerated impression of the importance of aquatic resources at this site.

SAFE BEHIND WALLS AND RAMPARTS?
ARCHAEOLOGICAL PERSPECTIVES ON EARLY MODERN FORTIFICATIONS IN THE BALTIC AND SCANDINAVIAN REGION

Thursday, 1 September 2016, 09:00-18:30
Faculty of History, Room 214h
Author - Pettersson, Claes B., Jönköping County Museum, Jönköping, Sweden (Presenting author)
Co-author(s) - Simonsen, Rikke, Museum of Copenhagen, Copenhagen, Denmark
Co-author(s) - Wennberg, Tom, Gothenburg City Museum, Gothenburg, Sweden
Co-author(s) - Pettersson, Claes B., Jönköping County Museum, Jönköping, Sweden

Keywords: sieg archaeology, conflict, fortification

Presentation Preference - Regular session

During the Early Modern Period the Baltic Region saw a number of conflicts where the ambitions of national states aiming for control of territory and trade clashed. The political instability created a need for protective measures. One way to deal with an almost constant state of warfare was to secure the borders; to fortify towns and other strategic key positions. The period between 1550 and 1750 saw immense investments when castles and town walls were modernized. The theoretical perspectives were developed on the Continent, but found a wide field of application in the Baltic region.

The new fortresses and protected towns were formed by the combination of military presence and civil life. But even the major cities were characterized by military aspects. Still the visions of the authorities met with harsh economic realities. Did the fortifications built match what was intended? However, what is needed today is a holistic approach to the “ideal cities” created by military states like Sweden and her neighbors.

The last decades have witnessed a re-establishment of contacts within the regional. Today it is desirable to address themes from a common past. Once again the Baltic Sea unites the countries bordering its shores. Research focused on the Early Modern Period with its multifaceted development can give us an important background; thus providing new perspectives on our own time.

This session welcomes papers dealing with research in fortresses and fortified towns of the Baltic and Scandinavian regions. We hope for a wide approach, with themes ranging from the development of modern fortifications and siege archaeology to the study of life and death in these fortified cities. The social and material aspects of human existence are seen as central for the understanding of contexts like these. This makes the session well suited for contributions with an interdisciplinary approach.
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. Carolus Nonus (Charles IX). In addition contemporary maps have been studied describing the work in progress. This has concluded that the work on this bastion alone proceeded over 200 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 - Persson, Claes B., Jönköping County Museum, Jönköping, Sweden (Presenting author)
Keywords: Conflict, Fortification, Siege archaeology
Presentation Preference - Oral

In the beginning of the 17th century the vulnerable southern border of Sweden was defended by modern fortresses. While Kalmar and Elfsborg protected the coastline, Jönköping castle should secure the inland routes towards the central parts of the realm. The site was strategically well suited, being a major crossroad with access to waterways.

The castle was originally a Franciscan convent, taken over by the Crown after the Reformation and fortified with walls, dry moats and corner towers. Vastly enlarged and modernized in the first half of the 17th century, this military 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 for the king in fighting for the Baltic Sea dominion and engaging the country in several wars.

Christian 4th made great effort to modernize the fortifications of the realm introducing the bastioned fortification on a big scale. He built more than 30 fortresses and fortified towns within today’s Denmark, Norway, Sweden, Germany and Estonia.

This project was initialized by an observation of some symbols and notes in a historical map from 1694 which is to my knowledge not discussed before. In the map are three conventionalized symbols of scones with a note, saying “old decayed scones of wood” in an area with no known fortifications until the late 19th century. One question is when and who built them, since they are from a period of several wars, when Gotland was swinging to and fro between Denmark and Sweden. There are no visible traces at the sites today.

In the military archives there are some interesting fortification maps, over all or parts of Gotland, and several detailed blue prints of fortifications, from the 18th century. One map and some blue prints are made by the land surveyor and lieutenant of the fortifications Mattias Brandt 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 scones fallen in decay by the countryside harbours in order, but when the first fortifications was erected is unknown, which he hope to be able to answer.

TH4-08 Abstract 07
Kuressaare fortress (Estonia) as an example of the transformation of bastion fortifications
Author - Nirk, 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.

Halmstad, situated in the former eastern part of the Danish kingdom, was from the beginning of the early 14th century a simply fortified town built on royal ground. It had a strategic position by the mouth of the river Nissan and the important road that led to the Swedish town Jönköping. Halmstad was also situated in a province that was bounded by Sweden. Several times during the 15th and the beginning of 16th centuries the town was forced to open the gates for the Swedish army. Halmstad was reinforced in the middle of 16th century and a new fortification was erected between 1588-1605 under the leadership of the Dutch master builder-architect Hans van Steenwinkel and after his death in 1601 succeeded by Willem Corrense. The layout of the new fortification system made it possible for the Danish king Christian IV to rebuild the town with a renaissance plan after a devastating fire in 1619. The defensive works was reinforced during the following decades. Through the Peace Treaty in Brömönsö 1645 Halmstad and the province of Halland became Swedish. The fortifications were maintained during the end of 17th century but started slowly to disintegrate and was demolished in 1735 by the military.

The first part of the paper will be a short presentation of the early modern fortifications put in the contemporary political situation and exposed position in the two kingdoms (Danmark and Sweden). The second part will present some historical examples from the Danish period. The investigations during the last years have proved that the defensive works had an immediate impact on the medieval townplan in certain areas. Old structures have also been integrated and given new functions. Even if the inhabitants have been better protected the fortifications created practical problems and forced people to change their habits.
Kuressaare was a small fortress – four bastions located at the corners of the medieval fortifications were sufficient for its defenses – but its command was essential to maintain the power on the island and carry out the ambitions of the Baltic Sea hegemony.

The general design of bastion fortifications, which was regular from the beginning and thus well consistent with the ideal of the period, persisted throughout all construction stages of the fortresses. But major and significant changes involved the bastions, particularly their most characteristic parts, their flanks. Although the core of the defense principle of bastion fortifications – perfect flanking defense – did not change, the methods to achieve it were considerably improved during the 17th century. Archaeological investigation allows us to get a glimpse of what it meant constructively, and analyze the fortification-theoretical arguments for these costly and labor-consuming undertakings.

**Keywords:** 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. As a result of the Prussian-Swedish struggle for the performance of 17th-century heavy artillery applied according to natural forms of the landscape. With my forthcoming doctoral dissertation, I have been considering what is meant constructionally, and analyze the fortification-theoretical arguments for these costly and labour-consuming undertakings.

**Presentation Preference:** Oral

**Co-author(s):**

- Wennberg, Tom, Gothenburg City Museum, Gothenburg, Sweden (Presenting author)

**Keywords:** Baltic Sea, fortification, maritime

**Presentation Preference:** Oral

**TH4-08 Abstract 11**

**Sveaborg (Suomenlinna), an 18th century sea fortress and the importance of water areas**

**Author:** MA, PhD Student Kovisko, Minna, The National Board of Antiquities of Finland, Helsinki, Finland (Presenting author)

**Keywords:** Baltic Sea, fortification, maritime

**Presentation Preference:** Oral

**Co-author(s):**

- Wennberg, Tom, Gothenburg City Museum, Gothenburg, Sweden (Presenting author)

**Keywords:** 17th century, Castle, Siege archaeology

**Presentation Preference:** Oral

**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)

**Keywords:** 17th century, Castle, Siege archaeology

**Presentation Preference:** Oral

**Co-author(s):** Sandin, Malin, Malmö 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 necessarily documented, and that in 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 royal castle of Älvsborg was of great importance for royal power. It secured the corridor of land that provided the crucial westward passage for Sweden. The castle and its fortifications are strategically located on a cliff at the mouth of the river Göta. The castle is an important and widely known part of Swedish history and is best known for two exceptionally large tributes paid to Prussian-Swedish hostility during the Seven Years’ War. Its last act was the annexation of Swedish Pomerania with Stralsund in 1815. One of the key factors for this struggle were the fortifications. They were built during the wars (field fortifications) and during peace time as well (fortresses, autonomous forts or sconces and fortified cities). Siege warfare assumed an important role in the war.

The main stress in this paper will be on the presentation of the activity of the Prussian side of the conflict, mainly in the area of construction of new permanent fortifications from the last half of 17th century through the first half of the 18th century. This large period is divided into two smaller ones.

During the first, between 1648 and 1720, Prussian activity was focused on securing the farther Pomerania. Its main city and most important fortress was Kolberg. The bastion fortifications of this city were already built by Swedish forces during the last stage of the Thirty Years’ War, but the Prussians thoroughly rebuilt it during the long modernization between 1655 and 1716. Apart from Kolberg a fortress in Rügenwalde was also planned, but never built. The main achievement of the second period was the modernization of the fortress at Stettin. It lasted only fifteen years (from 1725 to 1740), but was very intensive, more than half of the Prussian engineering corps was involved in this large construction site. Just as in the previous period, also after 1720 another fortress was considered (in Stargard), but it also was never built. After 1720 the Prussian engineers had to handle the problem of a large number of smaller and weaker fortified complexes in the Hither Pomerania, “inherited” from Sweden, such as cities with bastion fortifications (Wolin, Damm, Cammin in Pomerania, Neup War, Dampm, Dammgarten and Angarn), or single strongpoints such as sconces in Penemünde, Anklamer Fehr, Beinemünde and Divenau. Only some of them were modernized (Penemünde and Anklamer Fehr Schanze) but all of them were preserved until the second half of the 18th century, and even took an active part in the Seven Years’ War.

In the projects of Prussian fortifications in Pomerania different solutions are visible; traditional (passepartouts for guns in the flanks of bastions in Rügenwalde); modern, French inspired, connected with the activity of Hugenot engineers such as Cayart or Montargues, and the solutions influenced by Scandinavian military architecture (powder magazines in Stettin, similar to those in Copenhagen).
in connection with the Nordic Seven Years War (1568-1570) and the Kalmar War (1611-1613). These wars were two major conflicts between Denmark and Sweden a result of both countries constant rivalry for dominion in the north which had its origin in the medieval period.

Between 2003 and 2006, Gothenburg City Museum conducted a series of excavations at the Älvsborg Castle. The excavations aimed at examining structures belonging to the castle's early modern fortifications. Some features were revealed, such as a bastion, the moat, and the covered way. In addition to these, an extensive assemblage of artifacts that can be directly linked to the Danish siege of Älvsborg 1612 was recovered. The artifacts consisted of a range of ordinance, including lead bullets, cannonballs, parts of rifles, fragments of grenades. In connection with the besieging aspect of siege archaeology, the excavations also uncovered remains of a besiegers approach (saepe), and mines, and one of the castle’s defenders’ countermines.

During this project it has been possible to link some of the archaeological remains to actual events described in the historical sources therefore strengthening the actual narrative.

TH4-08 Abstract 13
The Outdating of Medieval Fortifications – The Castle of Raseborg and the Town Wall of Vyborg

Author: PhD docent Haggren, Georg, University of Helsinki, Espoo, Finland (Presenting author)
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 Gustav Vasa made a decision to abandon the old castle and build a modern one called Helsinki in his new town called Helsinki. This was a part of his large castle building program but in the case of Helsinki the King was not able to realize his ambitious plans.

In Vyborg a fortified suburb with two modern bastions was built ahead of the weakest part of the old town wall in the middle of the 16th century. These arrangements combined with the old town walls secured the urban settlement for another hundred years. However, in 1700 when a new war between Sweden and Russia broke out, the old town wall was in bad condition. Three years later an officer called Lorentz Stobaues was ordered to modernize the fortifications. The outdated town walls were now pulled down. Fortunately, before he began replacing the fortifications Stobaueus 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: Lyne, Ed, Museum of Copenhagen, Ørnhøj, 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, such as present day street layout (particularly Vester Voldgade). The first map however was only drawn in 1589, and the first historical references for this area date to the later 1530s, when Vesterport (the western gate) is mentioned for the first time. Part of the aim of this excavation was to confirm or reject existing ideas about the city’s border to the west, where it was placed, how it was constructed and when, and how it changed through time.

The excavations at Rådhuspladsen carried out in advance of the Metro Cityring, offered an unprecedented opportunity to examine the remains of the fortifications along Copenhagen’s western boundary, and as will be discussed here, the evidence unearthed has been extensive and very illuminating regarding the ongoing changes made to this boundary through the centuries.

The historical evidence, previous archaeological observations and the new evidence as documented in 2011/2012 will all be outlined, in an attempt to achieve as complete an account of the story of this boundary as possible.
PAST ANIMAL AND HUMAN RELATIONSHIPS AROUND THE BALTIC

Monday, 2 September 2019, 14:00-16:00
Faculty of Philosophy, Room 107

Author - Kirkinen, Tuja, University of Helsinki, Helsinki, Finland (Presenting author)
Co-author(s) - MA Ahola, Marja, University of Helsinki, Helsinki, Finland
Keywords: interpretation, material studies, rituals
Presentation Preference - Oral

Archaeology has produced a remarkable amount of bioarchaeological material and data from ritual contexts (e.g., burials, offering sites, rock art sites). This material mainly consists of organic materials, e.g., bones, teeth, antler, hair and fur. The basic aim is 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 broader community of archaeologists in Europe.

TH4-09 Abstract 01
Bioarchaeology in action - a multidisciplinary approach on animal remains in ritual contexts

Author - PhD Manermea, Kristina, 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

In recent studies hunting is hypothesized to have continued as the main subsistence strategy especially in Finnish inland areas long after the early phases of agriculture. In the northern and eastern parts of Finland hunting retained its central role up to the Modern Age. In this paper, the continuity of hunting and the long-lasting legacies of accompanied traditions are studied on the basis of Rangifer tarandus from the Iron Ages. The results are based on a somewhat heterogenous 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 02
Wild mammals in culture and landscape of the medieval Poland

Author - MA Wiejacki, Jan, Nicolaus Copernicus University in Toruń, Toruń, Poland (Presenting author)
Co-author(s) - Prof. Makowiacki, Daniel, Nicolaus Copernicus University in Toruń, Poland
Keywords: archaeology, 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 serial Archeozoologia in 70's and 80's. There are also two archaeozoological and synthetic works about past Polish fauna by Piotr Wyscot (1985, 1994). However, in present research authors revisit old records and opinions on this topic. Special attention will be also paid to fusion of archaeozoological, historical and ethnographical knowledge. It will be possible thanks to considering the time, space and category of archaeological contexts. Therefore the picture of medieval hunting, which was strictly related to the social status, will be possible to obtain. In this context it is important to emphasize special species such as red deer, elk, wild boar or brown bear. Crucial role played also aquatic mammals like beaver and otter, and its use as a fur-bearing animals. Apart from considerations on cultural aspects some osteometric observations will be performed. Measurements will be used for detecting the diachronic and synchronous trends in body size changes.

TH4-09 Abstract 03
The role of big game hunting among Iron Age boreal zone farmers

Author - PhD Student Kirkinen, Tuja, University of Helsinki, Helsinki, Finland (Presenting author)
Keywords: animal hair identification, inhumation burials, wild animals
Presentation Preference - Oral

This paper aims to discuss the role of big game hunting among the Iron Age farming populations in the southern half of Finland and West Karelia (Russia), South-East Fennoscandia. In Finland the importance of hunting and fur trade as supplementary economies have been considered an outgrowth of area's location at the northernmost limits of the cultivation zone in Europe. In recent studies hunting is hypothized to have maintained as the main subsistence strategy especially in Finnish inland areas long after the early phases of agriculture. In the northern and eastern parts of Finland hunting retained its central role up to the Modern Age. In this paper, the continuity of hunting and the long-lasting legacies of accompanied traditions are studied on the basis of Rangifer tarandus from the Iron Ages. The results are based on a somewhat heterogenous 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 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
Keywords: animal hair, Corded Ware grave, SEM
Presentation Preference - Oral

In the acidic soils of Finland, where organic materials from Stone Age are only rarely preserved, the Perttulanmäki Corded Ware grave is an important exception. Indeed, the Perttulanmäki grave, excavated at the 1930's, is the only Corded Ware grave in Finland with preserved human bone material. Aside fragmented skeletal material, the grave was furnished with a Corded Ware vessel, stone artefacts and a curious “dark layer of soil” surrounding the grave structure. This feature, and the new analyses conducted to the soil samples collected from the feature, is at the core of this presentation. During the 1930's, the feature was interpreted as remains of an animal hide. However, no supporting evidence was found then despite the analysis made with the optical microscopy.

In November 2015, we conducted new microscopic analyzes to the archived soil samples taken from the grave. By taking SEM micrographs, we detected mineralized animal hair remains and identified them as belonging to the Cervidae family. Our unique findings confirm that an animal skin was present in the grave pit, possibly used to cover its floor. Similar practice has been noted from the organic remains of contemporary Yamnaya graves of south-east Europe. However, the Perttulanmäki grave is the first Corded Ware grave with preserved animal skin remains. We suggest that more soil samples should be re-analyzed with SEM, to reveal more evidence of animal skin use in other Corded Ware graves.
TH4-09 Abstract 05
A critical appraisal of using relative bone weights of reindeer from archaeological sites
Author - Prof. Bartosiewicz, Łaszło, Osteoarchaeological Research Laboratory, Stockholm University, Stockholm, Sweden (Presenting author)
Keywords: meat consumption, reindeer, relative bone weight
Presentation Preference - Oral
Quantification in archaeozoology requires a combination of various approaches. In addition to primary osteological data (Number of Identifiable Specimens and weight) derived measures have been calculated to compensate for bias caused by fragmentation and selective excavation. Fragment weights have remained underexploited in developing such methods. The argument against their uncritical use is the changing specific weight of bone during diagenesis which presumes estimating absolute quantities of meat and even comparisons between bone deposits of different preservation.

Reichstein (1994) used the relative weights of elements in complete skeletons for cattle, sheep and pig as standards in analyzing the summarized fragment weights of elements in archaeological assemblages, presuming that the criterion of homogeneous preservation is met. Aside from NISP, weight often is the only information available in fragmented materials for estimating the representation of various body parts in food refuse. In this paper Reichstein’s method is extended to reindeer, a meat source of key importance in Paleolithic Europe and throughout the history of the northern Baltic region and adjacent areas. Skeletal element weights of a mature male were chosen against whose 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)
Co-author(s) - Prof. Szymt, Marzena, Adam Mickiewicz University in Poznań & Poznań Archaeological Museum, Poznań, Poland
Keywords: Neolithic, Poland, Zooarchaeology
Presentation Preference - Oral
The paper explores the role of pig in ritual communities associated with Globular Amphora Culture (GAC) at the turn of 4th millennium BC on the Polish Plain. Distinct ceremonial practices involving domestic animals are well-documented at sites linked to this culture, including commonly documented practice of so-called cattle burials. Pigs play also an important role for GAC chickens, and are also present in burial practice; however, the role of this species in other ritual activities, including taphonomy is largely under-explored. Taking into account new evidence from Globular Amphora Culture at Widziszewo in Greater Poland region we aim to explore this issue. The deposit excavated in one of pits at this site consisted of a tight cluster of remains of six pig carcasses, disarticulated and consumed in distinctive and standardised manner during a short-time event. The evidence from Widziszewo represents hitherto undocumented aspect of ritual activity of GAC communities, and has no direct analogies in the second half of the fourth millennium BC. This issue will be a subject for further research to determine whether it was a widely applicable ritual or a single instance.

TH4-09 Abstract 07
Cluttered faunal remains from a Roman Iron Age burial mound in Sweden: a taphonomic perspective
Author - Stolfa, Bettina, Stockholm University, Uppsala, Sweden (Presenting author)
Co-author(s) - Äikäs, Tiina, University of Oulu, Oulu, Finland
Keywords: animal offerings, reindeer domestication, Sami archaeology
Presentation Preference - Oral
The area of Fullerto, 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. Excavations in 1934 concerned a burial mound in the southern part of the area (RAÄ 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 Fullerto 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 mentions 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 analyzef the faunal content of the chamber tomb and to distinguish effects of later activities.

The identification and quantification of the remains will be accompanied by a comprehensive analysis of, e.g., fragment size, weathering and fracturing. The matter is challenging and complex, but it is hoped that contextual taphonomy might offer a means to approach faunal remains in disturbed archaeological settings. This study will thus contribute to the discussion about the ritualization of animals during the Roman Iron Age and demonstrate the possibilities and limitations of archaeozoology today.

TH4-09 Abstract 08
Animals of the living and the dead. Animal bones of Iron Age burials and settlement at Old Uppsala
Author - PD Magnus, Ola, National Historical Museums of Sweden, Lund, Sweden (Presenting author)
Co-author(s) - Sjöblom, Emma, SAU Societas Archaeologica Upsaliensis, Uppsala, Sweden
Keywords: animal bones, cremations, social zooarchaeology
Presentation Preference - Oral
Around the Baltic Iron Age burials animals reflect the importance of animals to humans in the Pre-Christian societies. Burials and ritual depositions of animal bones reveal complex social and symbolic relationships between humans and animals beyond the usual practice of animal remains. It is evident from several studies that animals had different social and symbolic significance for the living and for the dead in the burial rituals. Excavations in Old Uppsala, Sweden of a Late Iron Age settlement with a large contemporary cemetery have resulted in unusual conditions to study the animal and human relationship. A comparative study of faunal remains from settlement and burial has been performed to examine the handling of different animals in the everyday life of the living at the settlement and burial rituals of the dead. The study is based on abundance of species data, but also on site and sex of the animals. The taphonomic effect of cremations on bones from the burial in relation to the unburned bones from the settlement has been important to consider.

In recent years, archaeological excavations have been conducted on Sami offering sites dating ca. 11th to the 17th centuries in Fennoscandia. 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 rikäl, religious change, and human-animal relationships among the Sami. We argue that there was a change in the offering tradition, interweaving with changes in the subsistence economy and especially reindeer domestication. Our results indicate that reindeer domestication, acknowledged to have had a major impact on social organization and economy, was also a major factor in the transformation of Sami indigenous religion. However, the underlying nature of the offering tradition remained consistent although the focal species of economic and religious interest changed.

TH4-09 Abstract 09
Sami animal offerings, changing religious practices and human-animal relationships
Author - Dr. Salmi, Anna-Kaisa, University of Oulu, Oulu, Finland (Presenting author)
Co-author(s) - Äikäs, Tiina, University of Oulu, Oulu, Finland
Co-author(s) - Falstad, Markus, Stockholm University, Stockholm, Sweden
Co-author(s) - Sparre, Marie, Stockholm University, Stockholm, Sweden
Keywords: animal offerings, reindeer domestication, Sami archaeology
Presentation Preference - Oral
In recent years, archaeological excavations have been conducted on Sami offering sites (dating ca. 11th to the 17th centuries) in Fennoscandia. Moreover, some materials from Northern Sweden and archived in museum collections have been revisited with new methods and questions. Zooarchaeological analysis, radiocarbon datings of animal bones and stable isotope analyses reveal new information about religious rituals, religious change, and human-animal relationships among the Sami. We argue that there was a change in the offering tradition, interweaving with changes in the subsistence economy and especially reindeer domestication. Our results indicate that reindeer domestication, acknowledged to have had a major impact on social organization and economy, was also a major factor in the transformation of Sami indigenous religion. However, the underlying nature of the offering tradition remained consistent although the focal species of economic and religious interest changed.
Late Neolithic V-perforated buttons from a female burial in SE Poland - revisiting a case study

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Keywords: Beaker, osteous materials, personal adornments
Presentation Preference - Oral

The aim of this paper is to revisit a case study presented at the 21st Annual Meeting of the EAA in Glasgow in 2015 using results from all analyses conducted and offering an interpretation on their basis. During my presentation in Glasgow I argued that in regard to small and weathered finds it is often impossible to identify the raw material only by macroscopic evaluation but the use of low-invasive archaeometric techniques (conventional microscopy, SEM, microCT) can reveal structural micro-features and properties facilitating raw material identification. 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 Biokh laboratory of University of York, United Kingdom. Combined results showed that V-perforated buttons from the Sandomiersz-Zawichost Hill site were made of cortical tissue with a fringe of cancellous tissue from a long or a flat bone (e.g. scapula) of genus Bos (domestic cattle or wild auroch). It is consistent with what is known about Bell Beaker animal bone assemblages from Central and Eastern European context where cattle bones are the most numerous category of bone.

Although the material is not exotic and as such it does not directly link the Polish Bell Beaker southern group with the Iberian Bell Beakers, it is interesting in terms of bone technology and its significance. In this case it can be argued that the choice of this particular material for the manufacture of V-perforated buttons is meaningful - the buttons are made from a bone (or bones) of familiar animal; this material was easily attainable and manifested mechanical properties known to the artisan. The raw material choice can be thus seen as a conservative act perpetuating familiarity and stability within the group to which the wearer belonged. This study shows that a comprehensive low-invasive analysis of small and weathered artefacts can facilitate raw material identification and, subsequently, highlight issues connected with the raw material selection and its significance in the past societies.
be explained by the economic power of the owners’ estate. During XV – XX centuries livestock was the main source of meat in comparison with wild animals or birds. This data indicates the importance of meat (pork, beef, poultry, fish) and production of milk. The types, quantity, 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 meat. This was affected by the material well-being of strong noblemen and their dependence on the nobility of the Samogitian affluent circle. For example, in 1563 Stanišlavovská Škalská sent 80 partidges for Portuguese 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 conformed better than other animals, were grown only on larger manors. But this innovation spread slowly. Recently, we have integrated our investigations of the excavated bones with technical and analytical development to gain an all-round perspective on social zooarchaeology. As the past researchers, we have to try to realize the full potential of zooarchaeological data and different methods of zooarchaeology.

TH4-09 Abstract 15

Archaeozoology of Port Towns in Poland

Author - Prof. Malowicki, Daniel, Uniwersytet Mikołaja Kopernika w Toruniu, Torun, Poland (Presenting author)
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Keywords: Archaeozoology, Middle Ages, Tooms

Presentation Preference - Oral

Between 9th and 10th century strong port centers had been established at the southern Baltic Sea. Some of them played a key role in the history of Pomerania and of Poland. We can list, among others, Gdańsk, Kolobrzeg, Szczecin, and Wolin. Each of these centers was developing in a different cultural and environmental context. Archaeological research suggests that the role of ports in terms of trade, tourism, estuarine, and marine – was significant for them. However, up to date results of analyses, published in numerous articles in Polish language, consider each of the centers separately. Therefore, the aim of this paper is to compare them according to the archeozoological data. The effect will be to indicate the differences and similarities in the strategies for supply, and to consider the significance of mammals, birds and fish in the historically changing political, cultural and social reality of these centers in the Middle Ages.

TH4-09 Abstract 16

Birds and people on polish seaside in Middle Ages

Author - MA Wielgus, Nicolaus Copernicus University in Torun, Torun, Poland, Poland (Presenting author)
Co-author(s) - Prof. Malowicki, Daniel, Nicolaus Copernicus University in Torun, Poland

Keywords: birds, archaeozoology, Poland, Middle Ages, poultry, hunting

Presentation Preference - Oral

Polish seaside is characterized by different environmental conditions than the rest of the country. Societies living there since early prehistoric times exploited its resources for food supply and for trade purposes. Beside fishes and mammals also birds have played an important role in farming and hunting economy. Although the studies on importance of this group of animals in Polish areas have been taken up rarely so far. This paper is focused on breeding and hunting for birds during the Middle Ages in Poland. Some aspects of birds history on polish Baltic coast were briefly presented mainly in papers about principal sites like Gdańsk and Kolobrzeg. On the basis of published data and new research authors will compare obtained picture of birds economy with the rest of the country and observations for other parts of the Europe. Special attention is paid to a social status of domestic chicken and goose consumers in medieval settlements, towns and castles. The introduction of turkey is one of the most important aspect as well. The uniqueness of the coastal area can be observed considering the site in Kolobrzeg located on Wolin island. People living there have exploited local avifaunal species such as White-tailed Eagle and Cormorant.

TH4-09 Abstract 17

Did rats abandon a sinking ship?

Discovery of animal products from the 14th c. shipwreck in Tallinn

Author - Dr. Löugas, Lemsi, University of Tallinn, Tallinn, Estonia (Presenting author)
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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 burm marks visible on the wreck, which gives reason to assume that there was a fire that caused the shipwreck. Probably the lower part, which was not damaged so much sunk and became covered by sandy sediments quite fast. This caused good preservation conditions also for organic compounds of the materials, including different animal products. The paper focuses on the animal remains found in situ in the wreck. This is a unique evidence supporting the information we get often only from the written sources like medieval inventory books or chronicles.

TH4-09 Abstract 18

How to process meat for a 17th century warship

Author - Gornik, Björn, University of Kiel, Kiel, Germany (Presenting author)

Keywords: butchery evidence, GIS, zooarchaeology

Presentation Preference - Oral

Researching the fauna remains from the famous VASA, while testing a new GIS based system for displaying and analyzing butchery marks on bones.

The 17th century warship Vasa was launched in 1628 in the time when Sweden was on the rise of their stormtide, the time of their greatest power, but the ship capsized around 20 minutes after the launch. This catastrophic event led to one of the best preserved wrecks of all time and provides the opportunity to study a fauna assemblage in the context of a highly complex movable war machine, which would have built a small floating village with over 400 inhabitants and a diverted social structure.

More than 2200 mammal bone fragments could be mapped and specially analyzed within the ship, showing the main provision storage in the hold and distributed spots of presumably personal food at the upper gun deck as well as some smaller bone assemblages from the provision of special individuals or groups. Another 800 fragments must be considered as only poorly related since they lost their context information or were found outside the wreck.

All bones were, if possible, identified with taxa, skeletal element and side, showing a dominant amount of cattle, some pig and sheep/goat bones and a small amount game and birds. The only probably not food-related bones are 5 cat bones.

A special emphasis was placed on the butchery practice. Following the idea from David Ortwin (this conference) about the butcherypractice.org/bonecommons/items/show/1686) GIS shape files for all bigger post cranial bones were created in a higher resolution and from different sides. As an attempt to reconstruct meat cuts all the bones where recorded with a portion based system which can be displayed on the GIS files according to their frequency. Besides from obligatory measurements after Von den Driesch (1976) was the remaining length of the fragments recorded. All bones where weighed and the meat weight was calculated.

The butchery marks were identified as cutting, chopping or sawing and plotted with the direction of the strike as separate layers for each bone on the GIS files.

TH4-09 Abstract 19

Evolutionary history of Baltic seals inferred from the analysis of historical and subfossil samples

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Keywords: Baltic sea, mtDNA haplotypes and haplotype diversity, seal species

Presentation Preference - Oral

Local or global extinctions of large mammals known to have been exploited by humans raise a question of whether the extinction resulted from their exploitation or from natural factors. The extinction of the harp seal (Pagophilus groenlandicus) population from the Baltic Sea is an example of such case. Comparison of population genetic parameters between the extinct population and 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).
referring to 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, Čelīs, 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, Ķudupu, Jurizdika I and II, Kreiči burial ground were led by Rauls Šnore, Francis Zagorskis, Lūcija Vankina, who confirmed that the territory around the lake was inhabited during the Middle Stone Age. But after few years of surveying archaeologist R. Šnore found more story find concentration sites all around the lake that could also have been a settlements - Baltiņa point, Bazničukas island, Harpūnu island, Jurixīķa I, II, Kelvi, Kubolūna, Luzumīta, Ludza town, Seļekova I, II, Šeļupīni, Uļste un Vīķi (ūī). 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.Paave). Although not all tools were analysed, the dominance of the previously mentioned animals matches with the Latvian paleozoological material. It is obvious that elk was common, as more than 70 percent of all bone and antler tools used in the Early and Middle Mesolithic were made of elk. During the Late Mesolithic and Early Neolithic significantly grew the use of the wild boar (44.5%). Only in the Late Mesolithic people started to hunt also other species. A larger number of the marten, badger, fox, otter and other predator bones were found. Also the number of hunted roe deers and deers increased in the Early Neolithic, however not significantly.

TH4-10 Abstract 01
Traces on Material Culture: Craftspeople and Contact Networks in the Nordic Bronze Age

Author - Dr Negaard, Heide, Moesgaard Museum, Aebetoft, 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 craftsper-sion’s point of view, and as such also workshops and contact networks. With the knowledge of distinct techniques, the different skill levels of craftspeople and their affiliation to each other the organisation of metal craft could be better understood within the Nordic Bronze Age.

As a result of this study, it can be stated that an intensive exchange of technical knowledge between workshops around the North Sea formed the unit of the Nordic Bronze Age. However, technological innovation and the specific use of stylistic elements clearly separates the single workshops from each other. Especially the period between 1500-1300 BC, roughly the NBA II period, revealed workshops with individual technical behaviour, different forms of organisation and despite all of this a clear evidence for knowledge exchange. The investigation could not only identify the direction of this exchange but could also drag the idea of the itinerant craftsman back into the light of research.

TH4-10 Abstract 02
Technology exchange and iron trade around the Baltic Sea

Author - Jouttiläinen, Anni, Helsinki, Finland (Presenting author)
Keywords: metal trade, iron, smithing traditions
Presentation Preference - Oral

As a result of this study, it can be stated that an intensive exchange of technical knowledge between workshops around the North Sea formed the unit of the Nordic Bronze Age. However, technological innovation and the specific use of stylistic elements clearly separates the single workshops from each other. Especially the period between 1500-1300 BC, roughly the NBA II period, revealed workshops with individual technical behaviour, different forms of organisation and despite all of this a clear evidence for knowledge exchange. The investigation could not only identify the direction of this exchange but could also drag the idea of the itinerant craftsman back into the light of research.
The traditions of iron smelting and smithing technologies in Denmark from the Iron Age to the Medieval period, is fairly well documented on the basis of metallographic analysis of more than 500 artefacts. Compared to similar analyses from other areas bordering the Baltic Sea, it can be seen, that in Pre Roman and Roman Iron Age, there are differences in technologies, that is there was only a limited spread of traditions and knowledge.

In this period, the use of steel for cutting edges in tools and weapons developed in the areas south of The Baltic Sea whereas neither welded steel edges or carburisation was introduced in the northern part of Denmark. One illustrative example is a number of single edge swords found in a votive deposit at Vimose on Funen. Most of the swords were made from combination of layers of iron and steel. On the basis of analyses of slag inclusions they are judged to have their most likely origin in the area of present day Poland. The sword on the other hand was made from low carbon iron, and the slag inclusions indicated that it was produced within present day Denmark. Apparently the form was copied with no knowledge of the technology.

A much more developed network seems to have been present in the Viking Age, where similar technologies for example forging knives seem to have existed in the whole area around the Baltic Sea. It shows that there has been contact between smiths throughout the area, and that technological traditions have been exchanged.

Iron, and especially higher quality metal as steel, was probably also traded within the area, and slag inclusion analysis shows that steel in Denmark was primarily acquired from abroad. Unfortunately, reference databases are not yet sufficiently developed, especially for the eastern areas, and it is therefore not possible to give a more precise description of the trade routes. Future cooperation on the exchange of analyses of slag from iron smelting, will be able to open new perspectives in the identification of the trade of metal in the past.

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TH4-10 Abstract 03

Vendel period seaxes from Grobin

Author - Abolina, Arta, Riga, Latvia (Presenting author)

Keywords: Baltic Sea region, Metal Working, Vendel period

Presentation Preference - Oral

There has been little written about the Scythian seaxes found on the Eastern shore of the Baltic sea, and this is an attempt to present an overview of the finds from the Scythian colony in Seeburg (modern day Grobin) in Latvia. Since it is the only known Vendel period production outside their primary territory, it holds the special interest for researchers, but, so far, no special attention has been devoted to the seaxes finds. There are several fine examples in collection of the National History museum of Latvia, including one especially impressive long sax over 70 cm in length. After careful examination of the blade one can conclude that it was once a very fine example of blade smiths art of the period, consisting of mix of mono-steel and pattern welded elements. This 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 additional information on the people of this fascinating time period (burial is dated to the late Vendel period (most likely, 8th century).

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TH4-10 Abstract 04

Bronze Age fine metal working in Nordic Europe - gold discs and vessels

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Keywords: Fine metal working, Nordic Bronze Age, sun discs and vessels

Presentation Preference - Oral

Gold work was an important means of cultural and social expression and exchange during the Bronze Age, a period particularly rich in golden prestige items. Along Baltic and Atlantic Europe, ideas and peoples moved exchanging information, goods and technological knowhow. This paper deals with the esthetic appearance and social function as well as symbolic meaning of a particular group of luxury items from Scandinavia and Northern Germany, such as ornamental “sun” discs and containers made in gold. It focuses on their fine metal working technology essential to create their specific shape and decoration. The presentation aims in scrutinising the development and interdependence of form, function and technology of gold work. One topic will be the smiths workshops, its tool kit and materials used, as well as his social role in Bronze Age society. The presentation also intends to highlight the particular decoration techniques and tools applied to these sheet ornaments and luxury table ware.

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TH4-10 Abstract 05

Some aspects of the local weapon production in Western Latvia from 9th to 13th Century

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Keywords: Early Medieval, Early Baltic, Weapon production

Presentation Preference - Oral

The question of local weapon production in the lands of the western Balts during the end of prehistoric and with the beginning or Medieval period and during the Baltic Crusades is closely connected with a problem of formation of the early statehood of the local peoples in the Eastern Baltic. Western Latvian weapons finds, especially more than hundred evidences of the double edged swords, pattern welded spearheads are significant source about warrior elites with similar identities across the whole region. These find 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 smiths working with non-ferrous metals.

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TH4-10 Abstract 06

New archaeometallurgical investigations on Iron Age metal objects from the Eastern Baltic region

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Co-author(s) - Čivilytė, Agnė, Lithuanian Institute of History, Vilnius, Lithuania

Keywords: Archaeometallurgy, Bronze Age, Metal Objects

Presentation Preference - Oral

This archaeometallurgical study presents new research results regarding Bronze Age metal objects from the Eastern Baltic region. Since the last published analyses from Merkevičius in 1973 and Mödlinger in 2010, this new study sheds more light on the metallurgical development in this remote and seldom investigated region when taking of Bronze Age metalurgy.

Since the Eastern Baltic region lacks own copper ore depositories 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 deposits derive the used copper ores? What can be said about trade, import and 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, Riaunicynq district (Russia) and Balarus. Most of them are single finds and one newly discovered hoard find from the Late Bronze Age. Koblibebe.

We present the latest results of the performed analyses. Two analytical methods were applied on approx. 40 samples from metal objects (bronze alloy). First, the chemical composition was determined by energy-dispersive X-Ray fluorescence analysis. Using those results, it was possible to classify different material groups and to make statements regarding the alloying behavior.

Second, stable lead isotope ratios were analyzed for the first time in that region and the results were compared with lead isotope signatures from different copper ore deposits to identify possible regions of origin of the used copper. The geochemical fingerprints of the different deposits were taken into account as well.

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TH4-10 Abstract 07

A multidisciplinary approach to the study of Polish silver denarii minted by the early Piastas

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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 Piastas (10-11 th centuries AD) belonging to the collections of the National Museum in Krakow and the National Museums Berlin have been studied using micro-X-Ray fluorescence spectrometry and the data have been contrasted with archaeological context. 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
The concept of multimetality and the possibilities to capture this elusive, yet crucial, element of metal craftsmanship through the study of metalurgical debris will be discussed in the paper. The surveyed sites and the reconstruction of their internal workshop organisation will serve as examples of how multimetality was manifested on the sites and in the landscape.

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**TH4-10 Abstract 08**

**Smithies and forges in the Northeastern Baltic from the 11th to 16th century AD**

**Author:** Saage, Ragnar, Tartu University, Tartu, Estonia (Presenting author)

**Keywords:** Baltic metalworking, historical metallurgy, smithy sites

**Presentation Preference:** Oral

Smithy sites are quite rare monuments to be archaeologically excavated. This study encompasses sites from Estonia (Paattsalu, Haapsalu, Kuressaare, and Käiku), Finland (Gubbsbacks and Tonttirölä) and Russia (Minoino and Gat) to get a better understanding of the smithies discovered so far and how has the forge-construction changed. Also, ethnographic records of 19th-century Estonian smithies are used to illustrate the variability of the different smithy set-ups and (when provided) the conflicting reasoning behind these choices.

In the Northeastern Baltic, the period under investigation can be divided into three stages. Firstly, the Iron Age smithies with pit forges in the 11th and 12th centuries. Secondly, the transitional period in the 13th – mid-14th century, when the urban smiths began to use new forge designs, while some rural smithies continued to operate in the Iron Age traditions. The 13th century marked a period of crusades in the Eastern Baltic, which was followed by the founding of new towns, which brought forth an influx of craftsmen from the already established towns from the West. Thirdly, the developed crafts guilds period from the mid-14th – 16th century, when the continued movement of apprentices had ensured the spread of urban smithy designs and techniques to the rural areas.

While Russian smithies do not necessarily follow the pattern of Finland and Estonia, they provide a valuable source of well-preserved sites and workshops that can fill the gaps in our knowledge from that period.

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**TH4-10 Abstract 09**

**Tracing Multimetal Craftsmanship through Metallurgical debris – Open air workshops and multimetality**

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

**Keywords:** Metallurgical debris, Multimetal craftsmanship, Multimetalty

**Presentation Preference:** Oral

Metallurgical debris is by far the most informative source material for studying the metal craftsmanship of the past. In comparison to other, more traditional and often limited more by the choice of metal and workmanship, debris material are more or less confined to the original workshop sites and hence provide direct evidence as to production volume and quality, site organization, artisanal skill and operational sequences within the various crafts.

On many sites throughout the “Metal Ages” evidence of both iron smithing and the use of non-ferrous metals can be found. Traditionally, a clear division between these types of crafts has been enforced in site interpretation, separating sites into ferrous versus non-ferrous workshops. This is only observed chronologically or spatially. However, the presence of, for instance, smithing slag cakes with droplets of Cu-alloy within their matrix as well as casting debris of both metals and ceramic materials in forges and smithing hearths challenges this strict division.

The thesis project “From Crucible and onto Anvil” started in 2015 and focuses on sites housing remains of multimetal craftsmanship dating primarily from 500-1000 AD. Within the project a comprehensive survey of sites will be used to evaluate the presence of multimetal craftsmanship in the landscape based first and foremost on the metalurgical debris documented on or collected from them. Sites in selected target areas will be subject to intra-site analysis of their metallurgical remains focusing on workshop organisation, the array of metalworking techniques utilized and the chronological variances of multimetal craftsmanship.

A primary aim in the project is to elucidate the conceptual aspects of complex metalworking. The term multimetality is used to analytically frame all the societal and cosmological aspects of metal craftsmanship. Through this inclusive perspective 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 arena of political economy of the Late Iron Age. This paper aims to present a few examples of the surveyed multimetal sites, discuss workshop reconstruction through metalurgical debris and present preliminary interpretations of the sites internal organisation and placement within the cultural landscape. Many of the sites surveyed so far are interpreted as open air workshops with a relatively long continuity ranging several generations of metalworkers. How is this to be interpreted? Where the multimetal craftsmanship undertaken of temporary character? And if so, why did the metalworkers continue to use the same workshop site for generations?

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**TH4-10 Abstract 10**

**On some aspects of specialized production in Roman Iron Age. A case study of S-shaped clasps**

**Author:** Petalanen, Krzysztof, Zentrum für Baltische und Skandinavische Archäologie, Schleswig, Germany (Presenting author)

**Keywords:** Goldsmith, Roman Iron Age, S-shaped clasps

**Presentation Preference:** Oral

The main topic of the paper are goldsmith products from the Roman Iron Age in the southern and western zone of the Baltic Sea region with emphasis put on the production of golden and silver S-shaped clasps which were used as a closure of the necklace. Although one can speak about chainé operations in context of the individual specimens or in some cases products from limited geographical area such generalizations are not possible to the whole material. The use of certain techniques, order of their application or attempts to bypass them provide important information about local production and can be used to identify the producers or at least in attempt to limit the area of origin of the analysed objects. In the presentation the production of S-shaped clasps will be outlined and compared in the different areas of their distribution. This would show the strength and direction of inferences in the goldsmith production of the Roman Iron Age. On the other hand this deliberations – based on the assumption that S-claps may be perceived as both status and group affinity symbol – would allow to discuss those connections between the populations of the Baltic Sea region that were presumably based on heterogeneity.

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**TH4-10 Abstract 11**

**The path of knowledge - Transfer of knowledge of bronze casting in the Late Bronze Age Scandinavia**

**Author:** PhD Cand. Nilsson, Andreas, Lunds Universitet, Lund, Sweden (Presenting author)

**Keywords:** Bronze Age, Bronze Craft, Innovations

**Presentation Preference:** Oral

The Scandinavian bronze craftsmanship has been discussed countless times. But the discussion can continue thanks to new discoveries and new approaches within the subject. I intend in this talk to discuss technology dissemination and the availability of bronze casting technology in southern Scandinavia during the Late Bronze Age. Was the knowledge of bronze casting a closed knowledge or was the technology available to more people than specialists in bronze crafts? What paths have new innovations in form and function and the knowledge of changes in bronze casting technology taken? Can wesaes variations and ingenuity of bronze smiths at a local level? Was there space for everyday craftsmen or were all bronze craftsmen specialists? I will try to approach these questions by examining the various steps needed in the Chaine operatorie of bronze casting and by discussing different parts of bronze casting technology such as sprue and inlets, crucibles, technical ceramics and examine specific everyday objects made out of bronze such as socketed axes.

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**TH4-10 Abstract 12**

**Markers of ethnicity and female power? Some reflections on Scandinavian brooches in Viking Age Rus**

**Author:** Neib, Michael, Uppsala University, Uppsala, Sweden (Presenting author)

**Keywords:** Baltic metal working, Artefact biography, Runikid dynasty, Viking diaspora, Viking Age Rus

**Presentation Preference:** Oral

Prehistoric pictures are a special sort of source material. Pictures are not random products – they were created to convey messages. This statement applies especially to the oral culture of the Viking Age. However, Viking Age pictures rarely occur in independent monuments. More often, they appear as animal art on metal artefacts. The starting point for my reflections is a group of grandiose brooches from Viking Age Russia.
To begin with, a recent "object autopsy" on the famous Gnezdovo hoard revealed that two circular brooches should be regarded as locally made reconstructions of an elder brooch type, once imported from Scandinavia. In fact, no corresponding brooches from mainland Scandinavia display similar amounts of antiquarian sentiment. Why was then so much effort put into restoring the Gnezdovo brooches? One intriguing possibility is that these brooches represented heirlooms from an earlier generation of settlers. Presumably, over time some of these heirlooms transformed into important symbols of Scandinavian ethnicity.

In the case of the grandiose 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 craftsmen were able to travel considerable distances, there would have been no need for our female patron to seek out the gold smith. Having said that, we should neither exclude the possibility of a precious gift bestowed upon her, either by one individual or by several people.

TH4-10 Abstract 13
Technological aspects of the Swedish gold collars
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Keywords: fine metal working, gold collar, Migration period
Presentation Preference - Oral

The Swedish gold collars from the Migration period are enigmatic masterpieces of Early Medieval fine metal working. Their refined imagery, complex form and decoration, and sophisticated manufacturing techniques were studied within the scope of an international research project coordinated by Pesch, Alexandra (Schleswig). This paper deals with the technological aspects of these fineries including the “chaine opératoire” of the production processes and the tools implied. It provides new insights on the collars’ technology chosen by the goldsmiths to create the composite body, the figurative elements and the filigree and granulation work. Especially interesting are the technological features of the construction of the tubular sheet work and the making of the so called miniatures. The specialized and complex knowledge of the makers will be set in the context of fine metal working in the North during the Early Medieval period.

TH4-10 Abstract 14
Iron smelting process in the Žarδe-Bandužiai archaeological complex (Lithuania)
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Keywords: chemical analysis, Iron Age, iron smelting
Presentation Preference - Poster

The chronology of the Bandužiai (Žarδe) and Bandužiai settlements is very broad: economic activities connected to iron smelting and other not defined domestic activities were conducted in this territory from 1st millennium BC - early 2nd millennium AD.

Chemical analyses (XRF, SEM-WDX) of iron metallurgy artifacts and detailed analysis of archaeological material provide the opportunity to reconstruct process of iron smelting and to evaluate the development of archaeological complex in prehistory.

TH4-11 Abstract 01
Dental findings from the Mesolithic sites in Lithuania: morphology and affinities
Author - PhD Zubova, Alisa, Institute of archaeology and ethnography SB RAS, Novosibirsk, Russian Federation (Presenting author)
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Keywords: dental non-metric traits, Lithuania, Mesolithik
Presentation Preference - Oral

Domains and Spigins' 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. Spigins' Mesolithic graves belonged to the period from the second quarter of the VII millennium BC to the middle of the IV millennium BC [Česnys, Butrimas, 2009 table 1]. According to the results of previous investigations, the complex of non-metric traits in the sample from Donkalnis and Spigins was connected with so called «Middle European» dental type [Balčiūnienė, Česnys, Jankauskas, 1992; Balčiūnienė, Česnys, 1995, 2012]. The main features of this type are the absence of eastern traits such as, for example, shoveling of upper central incisors and distal trigonid crest on lower first molars, and at the same time absolute prevalence of five-cusped lower first molars and high frequency of Carabelli trait on the upper first molars. Middle European complex widely spread in the Middle, East and West Europe. It has a lot of variants inside, some of them are signally distinct from each other. So we need a more precise definition of the dental status of these findings and it is one of the aims of our research. The second one is the comparison of the Lithuanian samples with the Mesolithic findings from the other regions of North, East and Middle Europe for determination of the main directions of biological affinities.

The dentitions from six Mesolithic craniums were observed using ASUDAS, Russian dental system, called after A.A. Zubov and the program of the archaic traits accounting. Also the main dental dimensions (mesio-distal diameter, bucco-lingual diameter, crown height and root height) were measured. Obtained data were compared using the Principal Component Analysis (PCA) with the Mesolithic samples from Latvia (Zvenītai), Russia (Yur'ev Oleni Ostrov), Sweden (Scateholm) and Mesolithic and Neolithic series from Ukraine (Vasilevka, Vorov'yi-1, Vorov'yi-2, Nikol'koe, Yasinovatka) 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 Spigins belonged not to the clear middle-european type, as suggested in previous articles, but to the Baltic variant of this type. Difference between these two variants is in the presence of eastern admixture in the latter. This admixture strongly presents in the North, in the Yur'ev Oleni Ostrov, less in Zvenītai and minimally in Lithuania. So we can suggest that its presence depends on the distance from the North. Lithuanian findings lack almost all eastern non-metric markers, except the six cusp, 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 belong to clear middle European dental type, without any eastern admixtures.
Evidence for venereal syphilis in post-medieval Riga, Latvia

This research aims to evaluate the presence of venereal syphilis (VS) in two post-medieval cemetery populations from Riga, Latvia. Both skeletal populations were excavated prior to building and reconstruction work. Two hundred and seventy-four individuals from the Riga Dome Church cemetery (RDCC), and 196 individuals from the St Peter’s Church cemetery (SPCC), dating from the 16th – 17th centuries AD were included in the analysis.

To estimate age at death of the adult individuals, degenerative changes of the pelvis were evaluated, while sex was based on the morphology of the pelvis and skull using standard methodology. Age of non-adults was estimated according to dental development and eruption, using long bone length if dental analysis was not possible. All individuals were then observed for pathological changes possibly associated with VS, including destructive lesions on the outer surface of the skull vault and in the upper facial area, as well as bilateral, extensive new bone formation on the long bones of arms and legs. According to the morphological analysis, there were 108 males, 80 females and 86 non-adults in the RDCC population, and 74 males, 45 females with VS were selected for further analysis.

Pathological changes on the outer surface of the skull and on the long bones of legs characteristic of VS were observed in four female and one male individual from the RDCC. In addition, changes possibly related to late congenital syphilis were observed in a male and a female child from the SPCC population. Six individuals from the RDCC and two from the SPCC with lesions possibly associated with VS were selected for further analysis.

There were only two individuals with possible VS from the SPCC, a female and a male, both aged between 20 and 30 years at death. The skeleton was incomplete, and the diagnosis was based on bilateral, extensive new bone formation on the arms and legs, along with cortical thickening of the long bones. St Peter’s Church of Riga was associated with wealthy traders, but the cemetery outside the church mostly accommodated the ordinary, poor residents of Riga who belonged to St Peter’s parish. The evidence for VS in this two post-medieval cemetery populations complements historical data about the spread of the disease in Riga during the 16th – 17th centuries AD, along with the development of sea trade and the growth of Riga as a significant port city in the Baltic region. It also helps to understand how VS was introduced into the territory of Latvia: the only individuals with possible VS in the archaeological populations of Latvia have so far been found in Riga and Ventspils, which were relatively large port cities in the Baltic Sea trade route during the post-medieval period.
As a modern population, Finns are well known for an abundant record of genetic research. However, there are no ancient DNA studies focusing on Finnish population history before now. This study aims to reveal the genetic history of Finns by applying recent advances in genetic methods to samples collected in the past. We compared the mitochondrial DNA of ancient Finns with those of their ancestors and present-day Finns.

The study was conducted by researchers from the University of Helsinki, Finland, and involved the analysis of ancient DNA from a cemetery in Finland. The researchers used next-generation sequencing technology to identify genetic markers that could be used to trace the ancestry of the ancient Finns. They found that the ancient Finns had a similar genetic background to that of the contemporary population, indicating that there has been little genetic change over the past few centuries.

The study also suggested that the genetic makeup of the ancient Finns was influenced by migrations from the East, which had a significant impact on the genetic makeup of the contemporary population. The study is significant in providing new insights into the genetic history of the Finnish people, and it highlights the importance of genetic research in understanding human history.

In conclusion, the study showed that the genetic makeup of the ancient Finns was similar to that of the contemporary population, indicating that there has been little genetic change over the past few centuries. The study also suggested that the genetic makeup of the ancient Finns was influenced by migrations from the East, which had a significant impact on the genetic makeup of the contemporary population. The study is significant in providing new insights into the genetic history of the Finnish people, and it highlights the importance of genetic research in understanding human history.

Keywords: ancient DNA, archaeogenetics, Finland, Iron Age

**TH4-11 Abstract 08**

**Title: Bringing them to life - A multidisciplinary study of Eura Luistari cemetery (6th-12th c AD), Finland**

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**Institutions:**
- Finland
- Finland, Late Iron Age, stable isotopes

**Keywords:** Finland, Late Iron Age, stable isotopes

**Presentation Preference:** Oral

Recent studies of ancient genomes have revealed two large-scale prehistoric population movements into Europe after the initial settlement by modern humans: A first expansion from the Near East that brought agricultural practices, also known as the Neolithic revolution; and a second migration from the East that was seen in a genetic component related to the Yamnaya pastoralists of the Pontic Steppe, which appears in Central Europe in people of the Late Neolithic Corded Ware and has been present in Europeans since then in a decreasing North-East to South-West gradient. This migration has been proposed to be the source of the majority of the modern mtDNA and Y-chromosome variation in Europe.

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 from each of the archaeological collections studied were retrieved. The mitochondrial DNA evidence is used, through continuity tests, to compare the ancient human DNA profile of the prehistoric Eastern Baltic region 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 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.

**TH4-11 Abstract 07**

**Title:** DNA analysis of the individuals buried in the Salme boat graving

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**Keywords:** DNA analysis, Human remains, Next Generation Sequencing

**Presentation Preference:** Oral

Two boat-graves, 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 post-mortally acquired social status. However, with recent developments, modern DNA technology can enable a comprehensive genetic analysis. Today we can get information about ancestry, origin, gluten and/or lactose intolerance, family relationships and sex. It is also possible to predict physical appearance with regards to height, eye and skin color, length, weight, body mass index and BMI.

The introduction of next generation sequencing (NGS) has opened up a whole new field allowing numerous analyses that would not otherwise have been possible. We will use NGS technology and massive parallel sequencing for a detailed genetic analysis of the Salme materials along with current archaeological methods to generate a database with DNA profiles and information about individuals from the boat graves. Ancient skeletal remains present a number of challenging features where the amount and integrity of recovered DNA is limiting factors. We will use NGS technology to overcome many of the challenges in a detailed genetic analysis. The assay provides the opportunity to compare ancient 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.

**TH4-11 Abstract 09**

**Title:** Kivukalas bronze-working centre in light of archaeology and natural sciences

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**Institutions:**
- Finland
- Finland, Late Iron Age, stable isotopes

**Keywords:** Finland, Late Iron Age, stable isotopes

**Presentation Preference:** Oral

The Luistari cemetery in Eura is the most extensively researched Late Iron Age / Early Medieval cemetery in Finland, with over 1300 human burials. The cemetery has endured a series of disturbances that have resulted in the partial destruction of the cemetery. Our project called Life Histories in Teeth was launched in 2015 with the aim to develop isotope sampling methods and to produce new multidisciplinary information on the cemetery and the buried individuals. The best preserved human and animal dental and bone remains from 89 graves were selected and were sampled for this study. The human samples will undergo stable isotope analysis (813C, 815N, 818O, 834S) and a smaller sample set is further selected for compound specific isotope analysis, and later on, aDNA studies and new AMS-datings will be performed in a related project. In addition to this, pMC scanning, age at death modeling and paleopathological analysis will allow us to have a better understanding of the Luistari people and their diets, origins and life histories in the Late Iron Age Finland. Revised typologies and comparisons of the acquired data to contemporary populations around the Baltic Sea will also contribute to a comprehensive understanding on the contacts between different cultures during this time. Archaeoanthropological analysis based on the excavation documents and preserved find material will shed light to the burial customs, which include double and multiple burials, and even some deviant cases.
Kivutkalns complex of cemetery and hillfort has been considered as the largest Late Bronze Age bronze-working centre in Latvia. One third of the archaeological artefacts found at Kivutkalns hill-fort in the lower Daugava river are related to bronze working (Vaiks 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 (Oinonen et al. 2013).

In 2014 Finnish Cultural Foundation provided support for a new project to study chronology of the site, and cultural and genetic connections between Kivutkalns site and eastern Fenno-Slavonic. In this contribution, we present the status of this project. First, we discuss the cultural connections based on archaeological investigations of the artefacts from Kivutkalns Bronze Age cultures of north and south of Gulf of Finland. Second, we present new 14C-based chronologies of the site to shed light on both absolute and relative dating of hillfort and cemetery. Third, we present new data on dietary habits and discuss genetic affiliation of the people based on δ13C, δ15N isotopic data and ancient DNA measurements on human bones, respectively. Particularly, possible genetic connections between Kivutkalns and ancient and present populations of eastern Fenno-Slavonic are discussed.


TH4-11 Abstract 11

Pattern and diversity in the Late Mesolithic – Early Bronze Age mortuary practices of Eastern Baltic

Author - PhD student Daubaras, Mantas, Lithuanian institute of history, Vilnius, Lithuania (Presenting author)

Keywords: Eastern Baltic, archaeothanatology, Mesolithic, Neolithic, Bronze Age, mortuary practice, burial practice

Presentation Preference - Oral

Recent studies (archaeothanatology and new C14 AMS dates namely) of the Late Mesolithic – Early Bronze Age 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 interwoven 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 around the time of emergence of farming.

TH4-11 Abstract 12

Commingled remains of Late Bronze Age stone-cist graves at Jõelähtme in Northern Estonia

Author - Varul, Livi, University of Tartu, Tartu, Estonia (Presenting author)

Keywords: Burials, Late Bronze Age, Osteology

Presentation Preference - Oral

The Late Bronze Age (around 1200–600 BC) in Estonia is characterized by the emergence of stone-cist graves. The above ground mound structures with central cist(s) and one or more exterior circular walls were mainly erected in the coastal area of Estonia. Burials 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 Jõelähtme in Northern Estonia consisted of 36 stone-cist graves which have been fully excavated. The commingled and heavily fragmented remains of at least 3–4 individuals buried per grave. 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 Malmborg, 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 casket 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 taken up, and the significance of the different sacraments of extreme unction as an assurance that the deceased would not return as a myling 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 Medieval Age cemeteries there have actually contained infants - those in the cairn at Hau, on northern Gotland, have been dated to High Medieval Period.
Co-author(s) - Shotts, Sabrina, Smithsonian National Museum of Natural History, Washington, United States of America
Keywords: execution, Human remains, osteology
Presentation Preference - Oral

Investigating the human remains from the Tallinn gallows hill is part of an ongoing study of Estonian execution sites. The study involves field work and excavations of uninvestigated gallows hills, as well as analyzing material from previously excavated sites in Estonia. Comparisons will be made with data from neighbouring countries, and the ultimate goal is to provide a clearer picture of the history of executions in Estonia.

The main gallows site in Tallinn was excavated in 1994 as part of a construction project. Most of the site was dug through, and it is the so far most completely excavated Estonian execution site. The stone gibbet was erected around the 14th-15th centuries and was in use until the middle of the 18th century. During the rescue excavations a triangularly shaped and partially preserved structure foundation was encountered, and also numerous human remains: at least twenty complete skeletons together with approximately a hundred commingled skulls located inside the gallows structure. During the excavations, these human bones were interpreted as originating from executed individuals.

The mixed human remains were subjected to preliminary investigations in the mid-1990’s, but no thorough osteological analysis has so far been done for this extremely interesting material. Now, 20 years later, these remains will therefore be re-analyzed, with a particular focus on answering research questions such as identifying all the traumas that could be related to execution or violent death, and to determine sex, age, and pathologies - which age/sex group was executed the most, and where there any subadults among the dead?

TH4-11 Abstract 15
Mitochondrial DNA Analysis of Human Remains from Estonia – Insights and Challenges
Author - Pungke, Saasia, Institute for Archaeological Sciences Tübingen, Tübingen, Germany (Presenting author)
Co-author(s) - Mittnik, Alissa, Max Planck Institute for the Science of Human History, Jena, Germany
Co-author(s) - Altmae, RaiLi, School of Humanities, Tallinn University, Tallinn, Estonia
Co-author(s) - Krause, Johannes, Max Planck Institute for the Science of Human History, Jena, Germany
Keywords: ancient DNA, Estonia, Neolithic
Presentation Preference - Poster

The Neolithic Revolution, describing the transition from a hunter-gatherer subsistence to farming, is one of the most important processes in human history and has been found to be largely a result of demic diffusion. The arrival of the first farmers in Europe lead to an influx of genetic diversity not seen there before as well as admixture of local hunter-gatherer and immigrating people.

Changes in the human genetic makeup caused by the Neolithic Revolution were analyzed and described in previous studies lead to an influx of genetic diversity not seen there before as well as admixture of local hunter-gatherer and immigrating people. 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 cranometric 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 17
Examining skeletons from the Swedish 17th century flagship Cronan
Author - Dr. Wärmländer, Sebastian, Stockholm University, Stockholm, Sweden (Presenting author)
Keywords: bioarchaeology, craniometrics, skeletal analysis
Presentation Preference - Poster

At the time of its sinking in 1676, the Swedish flagship Kronan was one of the largest seagoing vessels in the world. With its sinking, Sweden lost an important naval battle in the Scanian War, and more than 800 individuals lost their lives in the Baltic Sea. In addition to the 500 sailors, the ship carried 350 infantrymen bound for the Swedish provinces in present-day Germany. The geographic origins of these individuals have so far not been investigated. In this study, geographic affinities of 24 human skulls recovered from the Kronan wreck were investigated through the analysis of metric and non-metric cranial data. Although the results indicate that many of the individuals aboard the ship were Scandinavian, a number of individuals exhibit cranial and dental characteristics inconsistent with European ancestry. These findings provide new information about the demographics of the Swedish military community during the seventeenth century. In addition, the study demonstrates the limitations of current cranometric 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.

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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 - Savuyle, Sandra, Bournemouth, United Kingdom (Presenting author)
Co-author(s) - Smith, Martin, Bournemouth, United Kingdom
Presentation Preference - Poster

During an excavation in Vilnius in 2001 a mass grave was uncovered containing over 3000 individuals, later identified as Napoleon’s soldiers from his unsuccessful 1812 campaign against the Russian Empire. In 2007 the burial ground of the former Royal Naval Hospital was excavated in Plymouth, UK. The graves that were excavated contained more than 150 British sailors dating from broadly the same period as the Vilnius mass grave. These two excavations therefore provide an excellent opportunity to compare broadly contemporaneous groups of servicemen that are very similar and at the same time very different.

The current project focuses particularly on spinal pathology and the respective effects that different kinds of manual labour might have had on individuals from the two groups studied. Whilst both groups are likely to have had rigorous demands placed on them by their respective occupations, the current study considers the extent to which varying kinds of habitual activities will have produced different patterns of alteration and pathological responses in this crucial part of the skeleton.
WESTERN BALTS IN THE IRON AGE

TH4-12

Author - Dr. Jahn, Christoph, Museum für Vor- und Frühgeschichte Berlin, Berlin, Germany (Presenting author)
Co-author(s) - Skvortcov, Konstantin, IA RAS, Moscow, Russian Federation
Keywords: Ancient Prussia in the XI – XIV centuries, the techniques of inlay and plating

The author of the paper will focus on few issues. First of all, results of analysis of the distribution of ‘belt hooks’ will be presented. Another issue of a significant importance will be the chronology of the investigated objects. A special attention will be paid to the problem of their function. Were they belt hooks, fishing lures or buckles for fastening clothes?

TH4-12 Abstract 05
Products Made with Inlay and Plating Techniques in the Ancient Prussia in the XI - XIV Centuries

Author - Khokhlit, Alexander, IA RAS, Tver, Russian Federation (Presenting author)
Co-author(s) - Skvorcov, Konstantin, IA RAS, Moscow, Russian Federation
Keywords: Ancient Prussia in the XI - XIV centuries, the techniques of inlay and plating

Different products made using the techniques of inlay and plating iron with base and precious metal were known in Prussian applied art since the end of Viking era. This technology wasn’t applied in material culture of early middle-ages Prussians. It is unknown where was the source for such sophisticated jewelry technologies often applied Prussian masters at one a thing from the XI - XII centuries. Products of this stage have intricate geometrical shapes that indicate some connection with early Scandinavian samplers. Time of their appearance in Prussia is similar with such décor spreading in neighbor territories of the Kursi and the Finns. The inlay was used as for arms (sword pommales from Zakrapina, Swityj (Zwitzendorf), plumes of spearheads from Vetrovo (Exhairter), Kovrovoe (Doljanskoe), Krasnoe (Belomor), Fedorovo (Moldarant), Prosorovo (Kuaster Br. bei Gaidau), battle-axes from Muromskoe) as for riders and horses outfit – stirrups, bit, cover plates for harness belts, buckles. The plating was used for decorating harness (cover plates, pendant), and some sfilia made from tin or bronze with silver foil cover. The most remarkable findings is pole-axe from Muromskoe, spearheads from Kovrovoe, Fedorovo and Kuaster, parts of harness from Gurievsk (Klein Heide) and Vologoe (Schulstein). Such décor has parallels in more early decorative elements of the Baltic Sea region. The second stage: the XII - the beginning of XIV centuries. It is specified by appearance of numerous products (iron parts

TH4-12 Abstract 03
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

The potter’s wheel is one of the principal technological innovations of the Late Iron Age (10th – 13th century). Through Baltic ware pottery, its use rapidly spreads across the Baltic Sea region. This paper focuses on the variability of pottery-forming techniques in Latvia territory during the adoption of the slowly rotating potter’s wheel and Baltic ware pottery. As indicated by archaeological material, both Eastern and Western Latvia are part of the Baltic Sea trade network. It is the path along which potters spread their goods and skills. However, when conducting a more detailed analysis of Baltic ware, the use of potters’ wheel is subject to distinct local variations. In the East, there appears to be a sudden switch from the previous potter tradition to the new Baltic ware. There is little to no interlaying period of varying hybrid-forms. It seems that the technology and the skills for using it were acquired almost at the same time. In the West the potters’ wheel is taken up only partly, preserving previous pottery production methods and using them alongside the new methods. The hand-made manufacturing tradition was not forgotten; in fact, hand-made pottery was still produced until the fourteenth century. This paper aims to show a different pattern of relation of the local people to the changing world around them through the acquisition of Baltic ware and the potter’s wheel. The differences of taking up the new technological innovation could not have originated just from differing placement within the trade network. Both regions have equal access to the new technology. However while some take it up rapidly others seem more hesitant. The braking and remaining of thousands of years old pottery production traditions was influenced by longstanding socio-economic paradigms. Further discussion of potterry variation might reveal some important playing factors within these paradigms.

TH4-12 Abstract 04
Belt hooks, fishing lures or clothing fasteners?

Author - Dr. Wadyl, Sławomir, University of Warsaw, Warszawa, Poland (Presenting author)

The South-Eastern coast of the Baltic Sea seems to be a zone of significant concentration of the so-called belt hooks. So far, we haven’t realized the scale of the phenomenon, usually citing just a few of the finds from the Western Baltic lands. In the most complete catalogue of the finds about 20 objects were listed, with nearly half of them found at the burial ground in Kaup near Wismar (Mecklenburg). Author of the paper has gathered information about over 40 `fasteners`. Investigated objects are leaf shaped or similar bronze, rarely iron plates with one end provided with a hook, and the other with S-shaped eyelet; both ends are bent to the opposite sides.

The so-called belt hooks were discussed in the past. The problem that attracted special interest was the function that the belt hooks served. Several interpretations were presented; however, most of scholars believed they were belt fasteners (K. Görlitzenhaken). An alternative explanation assumed that they were fishing lures/hooks.

The author of the paper will focus on few issues. First of all, results of analysis of the distribution of `belt hooks` will be presented. Another issue of a significant importance will be the chronology of the investigated objects. A special attention will be paid to the problem of their function. Were they belt hooks, fishing lures or buckles for fastening clothes?
of sword knots and belts, spurs for riding and buckles of spurs, arms like the sword from the Balga castle surroundings and sword hilt from Marienwerder) decorated with geometrical and zoomorphic ornament like image of horned animals ("goats of Perkūnas god") made in unusual for Prussia style with using wire and foil from different metals. Some researchers had suppositions about their eastern origin connected with the movement of the Mongols in Eastern Europe in the XIII century. Such supposition has its reason considering geography of findings (Moravia, Poland, Kalingrad region (East Prussia), Belgorod region). New findings of this stage goods (belt plates, spurs) are represented in materials from burial ground in Fedorovo, Runina Dolina (Unterpleien, Równina Dolna, Poland), Pruobno/AI Weihi, Simonischiken, Klinovka (Viljiala, Kunterstrauch), Ryzbachy (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 decor elements connected with Christianity (different images crosses) appeared in this period. This stage is characterized by the reduction of products plated with silver that was in active usage at the first stage. Mass use of these technologies passed away among Prussian jewelers. In this period such goods served as status indicating jewelry of Prussian nobles. This jewelry tradition passed away completely perhaps under the influence of European fashion after absolute conquest of Prussian tribes by the Teutonic Order.

TH4-12 Abstract 06
Western Balts after the Vikings and just before the Crusades.
Finalisation of the post-doc project

Author: Dr. Shiroukhov, Roman, Vilnius University, Vilnius, Lithuania (Presenting author)
Keywords: Archival data, Chronology, Western balts
Presentation Preference - Oral

During the several last years of preparation of PhD thesis about Prussians and Curonians contacts in the 10/11th-13th centuries and the Post-doc project, dedicated to the Western Balts social, economical and cultural development in the described period, the unique archaeological archives and artefacts database of the 37th scientific institutions from the 8th countries has been collected. Following the tradition of the transregional research of the Western Balts, established by Carl Engel and other East Prussian archaeologists and working in all the major archaeological collections of the Baltic sea region, connected to the Western Balts culture of the late 10th-13th centuries, with a particular consideration on former "Prussia Sammlung", the picture of development of the whole South-East Baltic region on the basis of archaeological data was elaborated. Considering this, catalogues, maps and analytics for the each general artefact type, burial custom and social (cemeteries based) structure were prepared and partially published. The very first draft of the book reviewed by 2 senior researchers was sent to the Research Council of Lithuania in March 2015. The basis of the draft represents the dissertation, significantly supplemented with data collected during the implementation of a post-doc project in 2013-2015, as well as some new ideas and theories about the development of the South-East region of the Baltic Sea in the 10-13th centuries. The final stage of the preparation of the 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 Khaganat was very short – it lasted only few years – as long as Avars threatened to the Empire's borders. Even though there are numerous finds of these coins in Lower and Middle Danube, in Carpathian Basin and further to the north up to Middle and Lower Rhine. One such coin was found on Polish lands. The one from Sambia is the farthestfind and isolated at the same time. The artifacts, which can be linked with Avar influence found within West Balts Culture Circle are rare. Among them there are mostly belt fittings, elements of harness and sporadically parts of jewelry. The coin then arises suspicions and questions on it's origin, time, ways and circumstances of the inflow.

In my paper I will present new ideas on this matter – contrary to common opinion, that Byzantine coins were brought to the north from the Carpathian Basin through Slaves, there were the rests of Germanic tribes, who should be linked with this mystery and unique find and it's appearance at the Baltic shore.
Advancement in the use and application of scientific techniques and methodologies in archaeology have significantly altered and contributed to our knowledge of the past. Many of the greatest examples of the research reconstructions of the past have been achieved through the integrated application of multidisciplinary methodologies. This theme seeks contributions that examine how the combination of interdisciplinary research methodologies have affected and influenced development in all areas of archaeology. Debates on both the advantages and the limitations of scientific techniques are invited, together with case study examples that illustrate the improvement of quality and reliability in particular analytical methods.

Closely related to long-standing scientific methodologies in archaeology, bioarchaeology is increasingly presenting a new focus on application of a variety of biological research platforms to our understanding of the past. Employing new technologies, new methodologies and new knowledge from biomedicine, chemistry, physics and biomolecular research, these complement our understanding of the past by adding a "biological dimension" to archaeology. In this theme, we call for contributions and discussion on various aspects of our understanding of the past by adding a "biological dimension" to archaeology. 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. During the Stone Age, given this, precise identification of the outcrops of siliceous rocks on the island and chemical composition of crude raw materials has been 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), thermal ionization mass spectrometry (TIMS), and electron probe microanalysis (EPMA) and micropaleontological analysis all have been used to distinguish artifacts from 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.
Sourcing and characterizing lithic technologies holds the key to deriving meaningful inferences and formulating testable hypotheses regarding the interaction of past hominins with their environment. Given that Palaeolithic artifacts were buried in secondary deposits over a long time period, even those artifacts that seem macroscopically “relatively undisturbed” might have been altered by sedimentological and weathering processes. However, the issue of rock surface alteration by mechanical, chemical (i.e. attrition, weathering or other kind of well-known post-depositional weathering) and/or thermal effects on artifacts and their possible influence on geochemical results has rarely been addressed explicitly. Preliminary results suggest that Laser Ablation - Inductively Coupled Plasma - Mass Spectrometry (LA-ICP-MS) is not subject to significant analytical limitations or distortions of results and their interpretation as a result of weathering effects and matrix alteration (Moreau et al., 2016). However, detailed experiments on the effects of patination and surface alteration of flint on geochemical results have yet to be carried out.

With the objective to verify the unbiased character of the LA-ICP-MS analytical technique, this paper represents a step in this direction. We present first results of a series of test measurements on 70 Gravettian flint artifacts from Maissières-Chenal in the Mons Basin, Western Belgium. Given the role of secondary flint deposits in Palaeolithic raw material economies, the variability of the archaological raw material will be discussed in the light of the petrographical and geochemical variability observed in geological samples from secondary deposits of the Mons Basin. Whereas chemical composition of scar surfaces derived from imaging are relevant for post-depositional processes, alteration characteristics of pre-depositional flint surfaces contribute to assessing toolstone source areas. The methodological advances resulting from this study will be applicable to any area or context in the Prehistory of Europe and further afield.

**TH5-01 Abstract 04**

**Renewed petrographical and geochemical studies of flint from secondary deposits: Belgian case study**

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Co-author(s) - Dr. Feraud, Paul, Sant-Pé-de-Lens, France

Keywords - Geochemistry, Neanderthal

Presentation Preference - Oral

The western region of the English Channel is an archaeologically rich area encompassing the French coastline and the plateaus of the Channel Islands located on the shallow Continental Shelf. Although modern sea level has obscured much of the prehistoric landscape for cooler periods during the last ice age, the region would have resembled a terrestrial plain with a diverse biotope ranging from boreal forest to tundra conditions, home to both Neanderthals and the large fauna that they hunted. This study is focused within the Middle Palaeolithic of the area; a time period represented well in the Western Channel for example at large scale sites such as La Cotte de St. Brelade, Jersey. It aims to shed light on the now largely submerged Neanderthal resource base by reconstructing procurement of their preferred raw material, flint (here referring to siliceous rock of Cretaceous age). On the Continental Shelf we know that primary bedrock flint was likely only available from several small chalk outcrops to the north of Jersey, whilst secondary flint deposits were present in relic beaches and carried by nearby palaeorivers. These flint pebbles, removed from their original context, are very variable with thick, pitted, cortex and visible inclusions, deriving from multiple parent sites.

This research focuses on artefacts within the La Cotte de St. Brelade assemblage that have likely been procured from a nearby primary bedrock source. At this stage these artefacts are identifiable macroscopically by the presence of thin chalky cortex and the fine-grained homogenous nature of the flint matrix. This project investigates the geochemical signature of these flint objects with
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 mutual contacts, as well as the size and quality of exchange networks.

At the same time, those features which caused siliceous rocks to be highly prized by ancient communities also mean that it is possible to distinguish and locate a deposit of concretes 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 Wistula basin is rich in siliceous rocks and it contains deposits of various varieties of flint. A ‘chocolate’, grey white-spotted and striped (banded) variety, Volhynian flint on its eastern borders and erratic flint, occurring mostly in secondary deposits, were all widely used in prehistoric times. Almost all types of them have been examined by using both macroscopic and petrographic-geochemical methods to define their diagnostic features.

One of the aims 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 method (SEM) and energy-dispersive x-ray fluorescence (EDXRF) spectrometry. The results of the EPMA and SEM analyses of erratic flint have revealed a largely homogenous mineral composition, which suggests that mineral composition will be of limited utility in in distinguishing erratic flint. However, EDXRF analysis of a small sample of erratic flint has identified differences in calcium (Ca) and iron (Fe) content between and among samples of erratic and ‘chocolate’ flint but a much larger scale of analysis is needed to refine the results of this preliminary study. The purpose of our work is to present the primary macroscopic and petrographic characteristics of different variants of siliceous sandstones, quartzite, siliceous marls, hornstones, flysch radiolarite and flints from the Eastern Carpathians as well as their natural sources. We point at distinctive features of macroscopically similar or almost identical raw materials that allow to discern stone artefacts and suggest their source area.
The development and production of brick production in the Neolithic, 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 Neolithic 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, Tarelkevičius, 2015, Archaeologia Lituan. v.16, p.45-62) enables to hypothesise that: a) in certain chronological periods the material for construction of buildings and production of bricks could be extracted from the same or adjacent clay deposits similar in mineral composition; b) there existed brick production technologies specific for that period. So, it is possible to try to create peculiar “multivariate recalibration matrices” with as many as possible dated or characterised by other parameters samples. According to them it would be possible to determine at least approximate date of the newly found interesting brick of unknown chronology or to compare other features.

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

Aiming to obtain more precise interpretation of brick origin and technological processes using geochemical methods it would be useful: a) to take more (³3) sub-samples from the same brick (avoiding the effect of random sample selection), b) to take samples from the inner part of the brick (reducing 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.
This paper is interested not only in the formation of these hollows but the nature of their infills and the research potential of the sites. It was noted that a particular strategy of sampling, which aims at taking into account the allowed time, as well as the average scientific and the available human being. All the archaeological units of this type have been searched and...
Archaeobotany as a tool to access site formation processes and archaeological contexts. Within this theoretical framework, concentrated plant remains are those found in true palimpsests (with or without residual refuse), cumulative palimpsests or temporal palimpsests must be discussed.

Given their high yield of artefacts and ecofacts, cesspits are afforded much time and effort in urban archaeology. While historical sources reveal that cesspits were emptied at regular intervals every few years, archaeologists still treat cesspits as closed contexts where artefacts are fossilized and undisturbed by subsequent cultural or natural processes. This ‘archaeological blind spot’ results from the lack of attention given to cesspit cleaning activities in the application of traditional archaeological methods. For example, counting ceramics both in terms of the ‘minimum number of vessels’ and fragments to tackle formation processes is widely known since Schiffer’s publications, but has not taken root in urban archaeology.

This presentation is a call for a revaluation of the contextual analysis, meaning that stratigraphy must be the terminus framework that links the single specialist reports, which would otherwise end up as discrete paragraphs in the definitive archaeological report. In order to date artefacts and ecofacts correctly, the issue whether cesspits are (in terms of Bailey 2008) true palimpsests (with or without residual refuse), cumulative palimpsests or temporal palimpsests must be discussed.

Cesspits and the P-P-P-P-problem: Cesspit cleaning activities Archaeobotany, Formation Processes, Pits

The pitfall of the Pompeii premise and the palimpsest

The interpretation of archaeobotanical assemblages has been traditionally based on a classification of archaeological contexts in two categories: dispersed and concentrated. These categories have deeply influenced the interpretation of archaeobotanical assemblages and archaeological contexts. Within this theoretical framework, concentrated plant remains are those found in association to well-delimited contexts, structured or not. These are usually considered to represent short-term events in which human selection must have played a determinant role, thus being mostly suitable for palaeoethnobotanical approaches. On the other hand, dispersed remains were those recovered in sediments dispersed throughout the site. They are supposed to represent the accumulation of remains as the result of different daily activities along an undetermined period of time. As such, they should embody a longer diachrony than the concentrated ones, thus being more suitable for palaeoecological approaches.

Nevertheless, this oversimplification of archaeobotanical realities does not take into full consideration the formation processes of archaeological contexts, consequently being more prone to mislead their interpretations. We argue that archaeobotanical studies would benefit from using a different theoretical approach, one that integrates the taphonomic processes underlying the deposition of plant remains. On the basis of such approach stand the concepts of primary and secondary deposition and tertiary refuse which have been successfully used for interpreting archaeological contexts and archaeobotanical assemblages (Schiffer 1987).

At Monte das Cabanas more than 3400 charcoal fragments, 397 sherds and 43 carpological remains have been analysed. All these archaeological materials provide taphonomic information to reconstruct cultural and natural processes involved in pit-filling, ultimately allowing the characterization of depositional practices developed by the inhabitants of this settlement (Schiffer 1987).

The aim of this paper is to use archaeobotanical remains and pottery sherds for interpreting layers and pit-filling processes. At Monte das Cabanas more than 3400 charcoal fragments, 397 sherds and 43 carpological remains have been analysed. All these archaeological materials provide taphonomic information to reconstruct cultural and natural processes involved in pit-filling, ultimately allowing the characterization of depositional practices developed by the inhabitants of this settlement (Schiffer 1987; LaMotta and Schiffer 1999). Finally we consider that the integration of archaeobotanical analysis with further archaeological evidences is crucial to better understand depositional processes and to distinguish between primary and secondary waste (Schiffer 1997, LaMotta and Schiffer 1999) and even tertiary refuse (Fuller et al. 2014).

The interpretation of archaeobotanical assemblages has been traditionally based on a classification of archaeological contexts in two categories: dispersed and concentrated. These categories have deeply influenced the interpretation of archaeobotanical assemblages and archaeological contexts. Within this theoretical framework, concentrated plant remains are those found in association to well-delimited contexts, structured or not. These are usually considered to represent short-term events in which human selection must have played a determinant role, thus being mostly suitable for palaeoethnobotanical approaches. On the other hand, dispersed remains were those recovered in sediments dispersed throughout the site. They are supposed to represent the accumulation of remains as the result of different daily activities along an undetermined period of time. As such, they should embody a longer diachrony than the concentrated ones, thus being more suitable for palaeoecological approaches.

Nevertheless, this oversimplification of archaeobotanical realities does not take into full consideration the formation processes of archaeological contexts, consequently being more prone to mislead their interpretations. We argue that archaeobotanical studies would benefit from using a different theoretical approach, one that integrates the taphonomic processes underlying the deposition of plant remains. On the basis of such approach stand the concepts of primary and secondary deposition and tertiary refuse which have been successfully used for interpreting archaeological contexts and archaeobotanical assemblages (Schiffer 1987; LaMotta and Schiffer 1999; Fuller Stevens and Mclatchie 2014).
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) fire-cracked 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 result from the analysis of the ratio of fire-cracked stones show that this is a way to group the cooking pits. The macrofossile 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 radiocarbon datings shows that the site was occupied temporarily.

The site was situated at a watered distance from the nearest known settlement. Our interpretation is that the site was an activity area and that it during at least three phases has been used for processing grain. It seems possible to compare this with historically known roasting activities. These were also performed separately from the settlements. It is an activity that is often associated with women, but the place was also known as a gathering point for others in the society. By focusing more thoroughly on one type of structure we have been able to gain more understanding for it. We have also been able to discuss social organisation and democracy and thereby question of interest for our society. The excavation is in itself an example of how to see democratically on different types of structures and sites.

THS-02 Abstract 09
Transdisciplinary results of site formation processes in the wetland site Zug-Riedmatt (Switzerland)

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The procurement of small prey has been widely discussed over the last decades, and in particular since the recovery of bird bone assemblages from archaeological sites dating to chronologies older than expected. Gruta da Figueira Brava is one of those sites, located on the west coast of central Portugal. The identification of a Middle Palaeolithic lithic industry essentially made of quartz and the MIS-5 absolute dates obtained by speleothem analysis have confirmed a Neanderthal occupation of the cave. The mammal assemblage recovered shows evidence of Neanderthal manipulation of large to very small animals, including tortoises and rabbits, with only scant participation of carnivore activity to the mammal accumulation. An faunal assemblage was also recovered and is composed by both marine and terrestrial birds, including edible species as well as diurnal and nocturnal raptors. Most bird species are from environments identified in the cave's surroundings, mainly from rocky cliffs and shores. Bird bones can be naturally deposited in caves, or accumulated by hominins and/or carnivore/raptores activity. In order to identify the agent of bird accumulation, a detailed analysis within the framework of taphonomic methodology was conducted. The data suggests that diverse occupational dynamics occurred in the cave with differences between the wrenched levels and MIS-5 deposits. Even though Neanderthal activity was identified on site, bird remains do not show a significant hominin input to the assemblage. The aim of the paper is, thus, to understand such contradiction and to discuss further hypotheses regarding the possible agents of bird bone accumulation.

THS-02 Abstract 10
Formation processes related to foragers in tropical forests

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Key words - Forager, Formation Processes, Tropical Forests

Although an important habitat for human societies, the study of archaeological site formation in tropical forests has been less studied compared to temperate and arid environments. Nonetheless, in addition to environmental factors, human behavior plays a significant role in the formation of the archaeological record. This paper focuses on the study of archaeological site formation processes related to forager ways of living in a tropical forest environment. It presents a geo-archaeological case study from South India where an integrated approach involving long-term ethnography, field excavation and geoarchaeological laboratory-based analyses. The integrated approach enabled to associate social and cultural aspects of forager ways of living - such as mobility and immediacy - with patterns of use of apace 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: geomorphometry and phytolith analysis and soil micromorphology. The results of the geoarchaeological analyses exhibit the environmental post-depositional processes occurring in tropical forests, mainly characterized by acidic conditions and intensive biological activity. Overall, although forager ways of living and the environmental conditions in tropical forests challenge the formation of a well-preserved archaeological evidence, an integrated approach examining the different scales of the archaeological record can successfully reconstruct human behavior and the formation processes of archaeological sites.

TAPHONOMETRY FROM THE MIDDLE PALAEOLETHIC SITE OF GRUTA DA FIGUEIRA BRAVA

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Keywords - bird, Middle Palaeolithic, zooarchaeology

THS-02 Abstract 11
Taphonomic analysis of the birds from the Middle Palaeolithic site of Gruta da Figueira Brava

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Keywords - Archaeological prospection, Italian prehistory, Site formation processes

Between 2011 and 2014 the authors investigated in detail the Maddalenina upland basin in the southern Apennines (800-1000 m a.s.l), which had previously (2005-2008) been archaeologically surveyed by the University of Groningen Institute of Archaeology. The new and interdisciplinary investigations consisted of geophysical surveys and geo-archaeological and pedological studies. In this paper, we present the results of this work conducted at site RB73, a representative small prehistoric ceramic scatter discovered by field walking survey in the lower part of a cultivated field, near an agricultural terrace. Magnetic gradientometry survey on the whole field did not result in any structural feature associated with a sinuous set of anomalies - seemingly of geological origin - was recorded running from the upper part of the field to the terrace and beyond. Manual augering across the anomalies and two test pits provided subsurface context to the surface finds and the geophysical data, revealing a surprisingly deep stratigraphy (>2m) from at least the Early Bronce Age to the Roman period. Starting anthropogenic deposits alternating with more or less sterile layers locally occur not only near the surface ceramic scatter, but throughout the anomaly. Sinuous anomalies now appear to be associated with surfacing anthropogenic deposits, with further pit-like anomalies detected in a second magnetometry survey suggesting exploitation of a locally shallow water table.
TH5-02 Abstract 13
Unravelling the formation process: re-excavating stratigraphy beneath the temples of Malta
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Presentation Preference - Oral

The greatmegathetic temples of Malta were first examined in a systematic manner in the early years of the 20th century by prehistoric archaeologists. Thomas Ashley and Eric Peat from the UK joined Themistocles Zammit in Malta in the first properly recorded excavations, and their published records provide an invaluable resource for our early understanding and knowledge of architecture. A century later, as part of the ERFAGUS project, three temple sites have been re-examined, in the quest for new samples for dating and palaeoecological data and in doing so have reinterpreted the work of these earlier scholars. This paper reviews how archaeological approaches to megathetic prehistoric sites have changed over a century by drawing some surprizing 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 remains 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 Rzotocze (Lublin voivodship, south-eastern Poland) was discovered by people using metal detectors when searching for military items from World War II. The first archaeological survey was conducted in 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 “Rzotocze – the ancient terra incognita” (Settlement micro-region in the area of Ulów in Middle Rzotocze in the prehistory and its background. Interdisciplinary studies) obtained financial support from the National Science Centre in Poland. The main purpose of the research is the reconstruction of processes behind prehistoric settlements in this area based on interdisciplinary investigations, including archaeological, anthropological, geomorphological, and archaeological 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 Weilbäck culture. The taphonomic problems were initially revealed by archaeological studies, which documented a large variety of weedy taxa and indicated preferences in their use in specific types of archaeological features. A group of selected charcoals was used for radiocarbon dating, especially those coming from various types of archaeological features and those that differed taxonomically. The results showed that a group of features with evidences of burning activities and with a small amount of archaeological material, which previously were interpreted as 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 charcoals and well-preserved archaeological material, which previously were interpreted as funeral pyres belonging to the Roman period cemetery. The stable isotopic 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 the radiocarbon dating is a full reconstruction of the different phases of multiscalar archaeological processes, and the relationship between these processes is only possible by the implementation of a complementary and interdisciplinary approach.

TH5-02 Abstract 15
An Interdisciplinary Approach to the Study of a Stratigraphic Sequence from Malalbergo (Italy)
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Keywords: Bronze Age site, palaeoenvironmental studies, stratigraphic sequence
Presentation Preference - Oral

The Middle to Recent Bronze age site of Pontecorri di Malalbergo was recently found in the lower alluvial plain of Bologna, 25 km NE of the city and 25 km south of Po river, 60 km westward the Italian Adriatic sea coastline. The study of a stratigraphic sequence contributes to knowlegde 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 settling optimal sealing 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 siltloam was laying at 6.65 m of depth (+2.35 m asl) while the Roman age topsoil was recorded at 5.7 m (+3.3 m asl) 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 loams settled 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 deposited upermost about 3 m of sandy loams. This site stands 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 preceeding 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: 13g/kg CaCO3; 30 g/kg Organic Matter; 8-11 g/kg Ptot; 87 mg/kg Cu; 2 mg/kg Sn; 245 mg/kg Zn. As term of comparison the Roman age Ap horizon, instead, recorded: 50g/kg CaCO3; 25 g/kg Organic Matter; 8-11 g/kg Ptot; 87 mg/kg Cu; 2 mg/kg Sn; 245 mg/kg Zn. As term of comparison the Roman age Ap horizon, instead, recorded: 50g/kg CaCO3; 25 g/kg Organic Matter. The Cu and Zn concentration was higher then the today accepted pollution thresholds suggesting a possible bronze fusion activity performed in the site core.
Exceptional discovery was made in the stratigraphically older layer of calcareous clay, where unusual pottery was located. Radiocarbon dates of the organic temper from pottery correspond with the end of 7th and beginning of 6th millennium BC. The pottery was found with stone tools. The composition of inorganic pottery matrix is not of local origin and points out that the sources of the raw material originated from the southern foothills of Stångevare 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.

References:
Zubrow and Lindstrøm (Current Anthropology 2015) applied Blake & Cross’s framework in areas around the “Vikingtidsgravene” (graves from the Viking Age) in Ustedalen, Gjøvik, Norway. Ustedalen was an important place for iron production during the Viking Age, and a major thoroughfare, connecting Western and Eastern Norway across the Hardangervidda arctic tundra plateau, for millennia. In this small pilot-project, we discovered unexpected sounds and interesting sound-quality that helps us construct a phenomenological understanding of life in Ustedalen in the Viking age. – Data will be presented. We concluded that Blake & Cross’s framework is a useful and comprehensive framework for integrating sounds, soundscapes and archaeoacoustic considerations into the archaeological multidisciplinary record.

Finally, this paper extends their framework by emphasizing the importance of silence and sound for transient experiences that leave non-transient remains.
TH5-02 Abstract 21

Plant macroremains as proxies to understand formation processes in lakeshore settlements

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Keywords: archeobotanical, preservation parameters, wetland archaeology

Presentation Preference: Oral

An intriguing phenomenon in wetland sites are mainly characterized by the presence of archaeological artifacts and clusters of organic remains resulting from the dumping of food or other useful plant remains (incl. cultivars), accumulations of dung and other organic debris like leftovers of building activities. How formation processes affect the preservation of these remains and the degree of representativeness of the resulting data is still largely unknown.

A recently excavated Late Neolithic settlement phase at the site of Parkhaus Opera (Lake Zürich, Switzerland) offers the unique opportunity of sampling a well-preserved waterlogged layer that spread over 3000 m2. A systematic sampling strategy was conducted and an ambitious project funded by the SNF (Swiss National Science Foundation) was organized in order to approach several methodological and research issues, among which was the identification of relevant parameters in archaeobotanical remains to characterize layer taphonomy. Uncharred plant remains are amongst the most fragile remains in such sediments and therefore ideal candidates for answering taphonomic questions. Based on previously published research and own experience we have defined around 70 variables (which included not only plant remains but also remains of diverse origin which appeared in archaeobotanical samples) which are considered to be indicators of preservation conditions. These variables were described for ca. 250 large-volume samples (ca. 0.1) 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 place in the future if proper palaeoecological evaluations of archaeobotanical remains are to be done.

TH5-02 Abstract 22

Unravelling Formation Processes Associated with Destruction by Fire

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Keywords: Destruction by fire, Formation processes, Geoarchaeology

Presentation Preference: Oral

Destruction by fire is a well-known archaeological phenomenon around the world, including the Near East. It is common in many sites in Israel dating to the Iron Age (ca. 1150 to 600 BCE), and mostly associated with territorial conflict, as in conquest campaigns. A recent project is conducted at Tel Megiddo, a key Near Eastern archaeological site, in which a massive destruction event (Stratum VAI of the late Iron Age II) is studied using a geoarchaeological approach. Initial mineralogical analyses, using FTIR spectroscopy, show that mud bricks found at the destruction level are homogeneously heated to about 600°C. This observation posed the question whether the site was constructed with sun-dried or pre-fired mud bricks. A paleomagnetic study of five bricks found in an in-situ standing wall shows the same magnetic field directions, suggesting in situ burning, i.e., construction with sun-dried mud bricks. In order to understand the manner in which sun-dried mud bricks behave during a conflagration, we conducted several sets of laboratory experiments using modern mud bricks fired under different temperature, duration and oxygen level conditions. The resultant fired model bricks were further tested for mineralogical changes under these various conditions. Based on previously published research and own experience, we have defined around 70 variables (which included not only plant remains but also remains of diverse origin which appeared in archaeobotanical samples) which are considered to be indicators of preservation conditions. These variables were described for ca. 250 large-volume samples (ca. 0.1) 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 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 ruinsidity or to establish its chronology.

We believe, however, that the study of the formation of the archaeological record has not been developed as it might have been, either theoretically or methodologically. In fact, the works of reference continue to be those written by M.B. Schiffer in the late third of the 20th Century: This investigator introduced the concepts of “systemic context” (dynamic stage during which elements shared the culture of their societies and different processes of aggregation and elimination were produced) and “archaeological context” (state in which these same elements have come to us over time, that is, the context of archaeology). Understanding the first will give us a better understanding of the second, in a process in which material culture plays a fundamental role as a link between both. It is precisely this aspect, the relationship between stratification and objects, that we want to discuss in this poster.

Starting from the experience accumulated by our group in field excavation, this study aims to characterise the main types of deposits that are recorded in an archaeological site, generating a reference framework that could be used as a hermeneutic and decodifying tool of the archaeological record. For definition purposes, we will use 3 stages that are acknowledged in the lifestyle 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 processes contribute to the presence of pottery in a very different manner.

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TH5-02 Abstract 24

The Archaeological Stratigraphic Sequences of the Vitava River Valley

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Keywords: Geoarchaeological archive, settlement episodes, Stratigraphic sequences

Presentation Preference: Poster

Archaeological terrains located on the left bank of the Vitava river in the Czech Republic are the unique “geoarchaeological archive”. These sites are threatened with current building development. But archaeologists don’t always give them so much attention it deserved. Their importance lies especially in the chronological record, integrity of unique archaeological findings and opportunities to study their genesis. We are constantly monitoring the occurrence of these layers on the left bank of the Vitava River in Prague (parts Sedlec, Dejvice and Bubene). We are talking about geomorphological temperate eastern slopes of the hills and foothills of the Upper Škryňa height. Local stratigraphic sequence captures the settlement from the Paleolithic to the present. It often has the character of a coastal “Tell” and has generally palaeolithic origin. According to the current knowledge on the river valley there is separated layer stratigraphy of the loess loams containing Upper Palaeolithic finds and this layer is overlaid by Holocene layers composed mostly by the dark loams containing remains of archaeological cultures from the Neolithic period to the present. Preserved stratigraphy layers have thickness from 0.5 to 1.9 meters and in parts of transverse depressions it may be even much thicker. The aim of this paper is to show the latest data sources to the objects of interest and to assess the state of current research.

Nowadays it is possible to comment the genesis of stratigraphic sequences only on the basis of macroscopic observations made in the archaeological rescue researches. On sites shown we can see, that development of the layers in prehistoric stratigraphic sequences may have a different time frames. On the example of the research in the street Pod Paštikou in Prague-Podštábba (2011) can be seen each episode of this stratigraphic process. It’s clear that there are rotating episodes of rapid deposition of so-called barren layers with local expressions of pedogenesis probably in the interim between the various stages of settlement and cultural layers formed “in situ”, which are documented with up to 16 episodes of the residential settlements and waste overlaid by fine sediment. For a more detailed understanding of the development of the stratigraphic sequences in a timeframe it is necessary to undergo the results of the excavations to a more through multidisciplinary research.
TH5-02 Abstract 25

EcoPlis: characterizing the prehistoric human occupations in the Lis River Basin (Portugal)

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Keywords: EcoPlis, Human occupation, Prehistory

Presentation Preference: Poster

The River Lis Basin, located in central Portugal, is an ecotone between the coast and the inland mountains. The unique conditions for highly preservation of both organic and inorganic materials make it a key region to acquire high-resolution data from both geological and archaeological contexts, fundamental for understanding features of hominin behaviour, such as mobility, site use, adaptive strategies and resource exploitation, 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 Paleolithic occupations in the Western-most Eurasia. Among other things, the project aims to contribute significantly for the understanding of the period between the demise of Neanderthals and their replacement by Modern Humans.

Our preliminary results show that, in the prehistoric period, the site was continuously occupied by hunter-gatherers. The most outstanding item is a stone macehead with geometric motifs. In 2015, the excavation features of this site are well-known from other contemporary archeological sites. Long-shaped, rounded corners are dominant, but without any further information, one can only guess at their function. The two outer furnaces of Hővégardó-Malomszög 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 variable. The high amount of porous pottery with gas bubbles is a local speciality. The ceramics’ 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 traditionnally archeology data completed by many archaeomaterial methods. Several institute made investigation on the found. So we have petrographic analysis, radio-carbon and termoluminescenc dating and xylotomic 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 Hővégardó-Malomszög probably had an Avar origin and it can be suggested that they lived there permanently and they lived Conquast of the Hungarians.

TH5-02 Abstract 26

Palynological contribution for formation processes reconstructions 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, stabilizing of flockes, etc. In addition, the integration of both biarchaeological proxies and the information from the archaeological excavations allows reconstructing the dynamics of formation of the archaeological record. In this work, a spatial analysis of pollen and NPP taxa has been carried out in order to obtain a better understanding about the formation of the several archaeological structures and sedimentary units of the site of La Draga (Siurana, Spain), a pile dwelling site located in the shore of Lake Banyoles.
Science and multidisciplinarity in archaeology

TH5-03 Abstract 01

Dietary Isotope and Paleopathology Reconstruction of the First Pastoralists from Cis-Baikal, Siberia

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Keywords: Diet, Pastoralist, Siberia

Presentation Preference - Oral

Nomadic pastoralists first arrived in the western region of Lake Baikal, Siberia, known as the Cis-Baikal, around 3000 years ago. Compared to early and later periods, the lifeways of these pastoralists, who brought with them domesticated animals including horses, sheep, goats, and cattle, is poorly known. This research presents the first stable carbon and nitrogen isotope dietary reconstruction of Cis-Baikal pastoralists (n=55), with most sites and individuals (n=34) deriving from ~2950-2350 calBP, in the Buturkhel 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 Buturkhel period have stable carbon values that are 2.0 to 4.0‰ lower than that of the domesticated fauna, which can be explained by consumption of freshwater vascular plant. 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 osteoarthopathy of the spine 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 most cases, improvements in health and activity levels are evident in the post mortem interval. We propose this suite of pathological lesions and spondylolytic alterations are likely the result of a lifetime of high mobility and riding horses through the rough steps environments of the Cis-Baikal. This research offers us new insights into the lifeways of Cis-Baikal’s enigmatic pastoralists.

TH5-03 Abstract 02

Porotic hyperostosis and cribra orbitalia over the Neolithic transition in the Danube Gorges, Serbia

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Keywords: bioarchaeology, copper age, cribra orbitalia, porotic hyperostosis

Presentation Preference - Oral

We propose this suite of pathological lesions and cribra orbitalia are likely the result of a lifetime of high mobility and riding horses throughout the Neolithic transition in the Danube Gorges. These lesions are most commonly reported in archaeological collections, but also show a gradient across the Neolithic transition in the Danube Gorges. In this paper, we introduce a large dataset from two archaeological sites in the Danube Gorges: Vlasac, Lepenski Vir, Hajdučka Vodenica and Padina; c. 9500 - 5500 BC. The implementation of aDNA studies has also brought us the possibility of better differential diagnosis. Hemolytic and megaloblastic anemia are the most likely cause of porotic hyperostosis, while other pathological processes (scrofula, rickets, hemangiomas and traumatic injuries) can also lead to orbital roof lesions.

The most commonly reported pathological lesions in archaeological collections are porotic hyperostosis on the cranial vault surface and cribra orbitalia on the orbital roofs, both macroscopically visible as conformed areas of pitting and porosity, and both being manifestations of diastop expansion. Hemolytic and megaloblastic anemia are the most likely causes of porotic hyperostosis, while other pathological processes (scrofula, rickets, hemangiomas and traumatic injuries) can also lead to orbital roof lesions.

Here we present results of a gross anatomical study of porotic hyperostosis and cribra orbitalia in a sample size of 113 individuals from four archaeological sites spanning the Neolithic transition in the Danube Gorges, Serbia (Vlasac, Lepenski Vir, Hajdučka Vodenica and Padina; c. 9500 - 5500 BC). We also discuss the paleoietic implications of our findings in terms of previous isotopic studies of this material. Our results show a high prevalence of porotic hyperostosis (89%) and a low prevalence of cribra orbitalia (13%). No major change in prevalence of these lesions was observed through time. Isotopic studies indicate an overall consistency in dietary habits during all three phases at all four sites in the Danube. Gorges. As there was no significant improvement in the quality of the diet, nor a change in living conditions, characterized by small, crowded settlements, this is considered supporting evidence that nutritional and sanitation factors are probable causes of porotic hyperostosis and cribra orbitalia in this region. We have found important implications for other studies of chronicisoplastic malnutrition and infectious diseases spanning the Neolithic transition elsewhere.

TH5-03 Abstract 03

Dental paleopathology, diet and mobility at the Copper Age site of Marroquies Bajos (Jaén, Spain)

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Keywords: bioarchaeology, Copper Age, Iberia, paleopathology, stable isotope analysis

Presentation Preference - Oral

Marroquies Bajos represents one of the largest Copper Age [c. 3200-2150 BC] mega-sites in Iberia and comprises a collection of numerous human remains. The site includes three areas of necropolis (N1, N2 and N4) where primary and secondary burials were documented. In this paper we explore dental paleopathology, dietary differences and patterns throughout bioarchaeological and multi-isotopic methods (n=108). The evaluation of the health status showed no significant differences in the frequency of caries between the three areas of necropolis. However, at N2 there is a higher proportion of hypoplasia and at N4 of caries than the total sample. Stable isotopes of carbon δ13C and nitrogen δ15N in bone collagen showed differences at N4 that at the other two mortuary areas. In addition, strontium isotope analysis 87Sr/86Sr and oxygen δ18O showed greater variability at N2 and N4 at that at N1. This research aims to investigate social differences based on health status, access to resources and place of origin between the three funeral areas based on the combination of paleopathology and stable isotope analysis. We will discuss the correlation of diet and health along with the mobility patterns and the implications of these findings in the frame of the evolution of late prehistoric societies in the Iberian Peninsula.
The paper will present and discuss results of stable isotopes analysis of carbon and nitrogen for a diet as well as strontium and oxygen for a provenance from 6 inhumation cemeteries with chamber graves. This form of elite burials was constructed in and used in medieval Poland mostly during the second half of the 15th century and the early 16th century due to shape of social division, forming of elites, creating of a state and a religion shift from paganism to Christianity. Chamber graves were characterized by having an inner wooden construction in a form of a chamber and were often furnished with numerous and luxury grave goods.

Such burials were places of eternal rest for men, women and children. For the study of the diet and the provenance were examined samples of bone collagen and tooth enamel from individuals buried in chamber graves as well as samples from ordinary human graves and animal remains as a background. The obtained results suggest that individuals buried in chamber graves formed heterogeneous groups of people. Some of them seem to be of local origin and some were newcomers from different regions. Their diet, with some exceptions, did not vary much from the deceased interred in ordinary graves. However, the diet consumed by men and women buried together in double graves differed significantly.

TH5-03 Abstract 07
A palaeopathological and isotopic approach to dietary changes in medieval Holland

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Keywords: dental caries, medieval Holland, stable isotopes
Presentation Preference - Oral

The late medieval period in Holland was characterised by substantial socioeconomic changes. While the region was largely undeveloped prior to AD 1200, after came large scale urbanisation and flourishing international trade, changes that would have impacted many aspects of life. This paper investigates the effect of these changes on diet by comparing skeletal collections from the central medieval village of Blokhuzen (AD 1000-1200) to the late medieval town of Alkmaar (AD 1448-1752) using a combination of dental disease and stable isotope data.

The caries results clearly point to a dietary shift (213 individuals analysed). The urban population of Alkmaar has a significantly higher caries frequency, which begins at a younger age, than the individuals from Blokhuzen, suggesting increased consumption of cariogenic products, such as sugars and starches. Significant dietary differences are also demonstrated by the stable isotope data (sample of 50 individuals analysed). The population of Alkmaar showed significantly enriched δ15N ratios and had more variable δ13C ratios than the population from Blokhuzen. This may be due to increased consumption of freshwater or marine fish by the people of Alkmaar. Alternatively, the consumption of animals/animal products of a high trophic level such as chicken, eggs, and pigs could have contributed to enriched δ15N ratios.

A difference in the patterning of caries and isotopic data in males versus females between the two populations also demonstrates a dietary shift. In rural Blokhuzen, there was a significant difference between males and females in regards to caries frequency but not stable isotope values. This likely reflects the universal biophysical phenomenon of higher caries frequencies in women. In urban Alkmaar, there was no significant difference in male-female caries frequencies, suggesting the diet changed in such a way that the expected difference was eliminated. The males were eating a certain type of food that was rarer in the female diet, that did not shift their δ15N values away from that of the females, but elevated their frequency of caries. This could include more starchy or sugary foods that were consumed more by women than men, an effect known as the “woman effect”.

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 palaeopathological 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 isotope analysis
Presentation Preference - Oral

Stable isotopes analysis is used to study mobility in the past societies. It has provided us a tool to investigate outdies 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.
Diet, morbidity and mortality of a north Finnish town 1600-1800 AD

Kemi (66.5N 25E) has been a small but relatively important town in southern Finnish Lapland since the 16th century. The morbidity and mortality of its inhabitants has been studied on the basis of death records that contain the statistics of nearly 1000 individuals that died in Kemi between 1690 and 1850. These data include the individual’s name and profession, the death date, the date when the body was buried and, in 1790 onwards, the date of death. In addition, the textually mentioned remains of some individuals buried under the churches of Kemi and Hanko (66.75N 26E) from the early 17th to the mid-18th century were investigated by means of Computerized Tomography (CT) scanning and stable isotopes analyses in order to obtain information about possible pathological features and the diet. Zoosarchaeological and ethnohistorical data have been used together with isotopic results in the interpretation of the local diet. This paper presents and discusses the preliminary results of this research.
The advances in geochemical and physical anthropological studies have provided new tools to reconstruct the lifestyle of human populations. Molecular analysis can be easily associated with microscopy techniques and stable isotope analysis in order to obtain various information regarding past population lifestyle. The oral human microbiome can be investigated in order to determine the bacterial specificity in the ancient populations compared to modern ones. Dietary changes are correlated with modifications in the oral microbial community structure. A series of species with particular signatures associated to human oral microbiome can be identified and tracked through space and time in the human population. The dietary preference indicates the specificity of human-environment interaction in search for food and water. The present study aims to investigate the oral microbial diversity and the food preference of a medieval population (10th century) situated in the south-eastern part of Romania (Capidava, jud. Constanta, Romania). 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
This study was supported by funding from the project Genetic Evolution: New Evidences for the Study of Interconnected Structures (GENESIS). A Biomolecular Journey around the Carpathians from Ancient to Medieval Times. (CNCSIS-UERSCI_DNI_PCCA_1153/2011)

This study has received funding from the Genetic Evolution: New Evidences for the Study of Interconnected Structures (GENESIS): A Biomolecular Journey around the Carpathians from Ancient to Medieval Times (CNCSIS-UERSCI_DNI_PCCA_1153/2011) project.
Since 1983, excavations at the site of Montel (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 determines 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 individuals’ dietary habits and preferences, at least for the last few decades before their death, as a result of their trophic position in the animal food chain. The mineral part of the bone (bioapatite) registers the geochemical composition of 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 bone collagen and bioapatite can therefore provide a detailed picture of the existence strategies adopted by the late medieval populations buried at Montel.

These dietary strategies will be discussed regarding the type of plant resources, inferred from bone carbon isotopic ratios (δ13C), the origin of water supply, deduced from bone oxygen isotopic ratios (δ18O), as well as individual’s trophic level position, addressed using bone nitrogen isotopic ratios (δ15N). While these isotopic tools have been routinely employed in past dietary studies and measured using an IRMS, bone Sr/Ca and Ba/Ca ratios were also analysed to provide additional information on the trophic level, marine food consumption, as well as potential mobility. Bone Sr, Ba and Ca contents were measured using a cutting-edge technique (LA-ICP-MS) that enables us to create spatially 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 an environmental geochemical baseline for each analytical proxy applied, and to enable the discussion of the Muslim and the Christian economy in Montel.

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 Weser river and the Bug river, to the area of south-eastern Vistula. Cross-cultural interactions were established with other regions through cultural contacts and material exchange. The Geoarchaeological investigations were performed to understand the environmental impacts on the cultural landscape, and to identify the cultivation areas and economic strategies for the creation of new archaeological cultures which are chronologically assigned to the Early Bronze Age. The western part of Poland, in the Odra and Warta river basins, is occupied by the Unetice culture, and the central and eastern part (upper Odra and Vistula river basins, Lublin region, Volhynia, Podolia) is the area of the Mierzanowice culture. Archaeozoological investigations approx. 2000 BC, on the basis of samples taken under the influence of eastern groups such as the Yamnaya culture and the Catacomb culture, the Strzyzow culture, specific in terms of funeral rites and material culture, comes into existence. It develops side by side with the Mierzanowice culture until approx. 1600 BC, then giving way to the Trzciniec culture.

From 2008 to 2015 fifteen graves were discovered. Interdisciplinary investigations of excavated skeletal remains were carried out. It corroborates the knowledge gained from archaeological, anthropological, radiological, odontological and genetic investigations. The research was based on visual inspection, stereomicroscopic investigation, classic radiology. The research was supported by computer tomography imaging (CT) to obtain digital images and 3D reconstructions as well as 2D radiographs to identify 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 anthropological and genetic investigations allowed to approximate sex and biological age (skeletal age) of the 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.

Skeletal and dental pathologies have been analyzed. Osteoma in the tibia of the individual found in grave No. 10 has been identified. The burial site of the Strzyzow Culture in Rogalin contained 15 graves with the skeletal remains of 18 individuals. In 3 of 15 graves skeletal remains of more than one individual were found (one adult and one child in each of 3 double graves). Interdisciplinary anthropological and genetic investigations allowed to approximate sex and biological age (skeletal age) of the 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.
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 of mtDNA were observed among individals of the graves 4B and 4C, and the graves 3A and 5, which may define their kinship in the maternal line. Estimates haplogroups (hgf) of mtDNA in these relationships are H1b and H2a respectively. In addition, mtDNA haplotypes have been obtained in the analysis of the graves 2, 6B and 12. Preliminary results indicate that individuals belonged to haplogroups H1b and H6 respectively. Recent genetic studies of the remains of the burials 13 and 16 have been inconclusive about the sex of the individuals analysed. While mtDNA haplotypes obtained indicate that they belonged to haplogroup J1.

The presented studies have proven that interdisciplinary analysis from a wide range of archaeology-related and anthropological-medical fields can assist studies and broaden the knowledge of archaeologists and anthropologists to enhance the understanding of the Strzyzow Culture.

**TH5-03 Abstract 19**

**Cooking for the deceased: ceramic with lipids from the megalithic necropolis of Panorí (Spain)**

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**Keywords:** dolmen, grave goods, organic residues

**Presentation Preference:** Poster

The megalithic necropolis of Panorí was discovered in 2012 and suposes the latest addition to the finds of megalithic cemeteries from the megalithic necropolis of Panoria (Spain). Bioarchaeology – Behind the Scenes of Multi-Proxy Analyses

As fossilization, burning, leaching of elements within the sample, etc. It is also possible to evaluate the presence/preservation of skeletal remains. Once optimal samples are selected, it is possible to go into the isotopic study of archaeological bone and teeth. - Poster

**Keywords:** bioapatite, stable isotopes, XRF

**Presentation Preference:** Poster

**Bioarchaeology – Behind the Scenes of Multi-Proxy Analyses**

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**Keywords:** bioclasts, stable isotopes, XRF

**Presentation Preference:** Poster

In archaeology, the study of bone and teeth is key to the understanding of the past as they represent direct evidence of life on Earth. The mineral present in bone and teeth (bioapatite – a highly substituted hexagonal calcium phosphate apatite) contains several elements that can be used to reconstruct palaeoenvironments, palaeoecology, mobility patterns, etc. However, when looking at bioclasts of bone and teeth, diagnosis remains a problem that is often overlooked. Recent developments in high resolution infrared and X-ray analyses allow for a better assessment of the preservation of archaeological skeletal remains. Once optimal samples are selected, it is possible to go into the isotopic study of archaeological bone and teeth. In this poster we present the structural and chemical compositions of hundreds of bone and teeth with ages ranging from the Mesolithic to the present day using µXRF, FTR microscopy and (CP-MS). Several alteration patterns can be observed such as fossilization, burning, leaching of elements within the sample, etc. It is also possible to evaluate the presence/preservation of organic matter in these samples. A selection of optimal samples are then analysed isotopically (813C, 818O, 813C, 818O, 818O and 87Sr/86Sr) and the results discussed in terms of diet, climate and mobility.

**TH5-04**

CREMATED REMAINS IN ARCHAEOLOGY: NEW METHODS, FINDINGS, AND INTERPRETATIONS

Thursday, 1 September 2016, 09:00-13:00
Faculty of History, Room 330

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**Keywords:** bioarchaeology, cremated remains, osteology

**Presentation Preference:** Regular session

Cremated remains have historically been a neglected area of archaeological evidence, with many early excavators discarding remains with little attempt at formal analysis; until recently, they were undervalued as a resource and their potential under-explored.

Nevertheless, traditions of cremating the dead have been common across Europe and therefore a large amount of knowledge about past societies lies in the understanding of cremated remains. The last three decades have seen a dramatic increase in the attention paid both to individual deposits of cremated remains and to this class of material as a whole. Standardised methodologies for demographic analysis are now well established, and the development of radiocarbon methodologies applicable to cremated bone increased the perceived interpretative value of this material among a wider audience. The study of cremated remains is now in a phase of maturation, with new methodologies, often aided by technological advances, allowing sophisticated analysis and interpretation.

This session aims to bring together researchers from across Europe working with cremated remains, to present new developments in their analysis and interpretation, and new findings resulting from these developments. We aim to foster international discussion, communication and collaboration to share methods, results, expertise, and expand the common knowledge about this branch of bioarchaeology.

**TH5-04 Abstract 01**

Unravelling Cremated Bone – Structural, Elemental and isotopic Studies

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**Keywords:** Cremated Bone, Infrared, Isotopes

**Presentation Preference:** Oral

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 (813C, 818O) on both human and zooarchaeological cremated bone with different heating rates. The results of various 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/tooth, they allow to identify burned bone by its lower oxygen and carbon isotope ratios of calcined samples compared with unburned bone. In contrast, the effect of burning on the strontium ion in bone is minimal. Furthermore, as observed through artificial contamination experiments, post-burial alterations also appear to be extremely limited, which is to be expected due to the higher crystallinity of calcined bone apatite compared to unburned bone and even enamel. These experiments demonstrate that calcined bone provides a reliable substrate for mobility studies using its strontium ion isotope composition. The results of this work greatly extend the application of this new methodology to places and periods in which cremation was the dominant mortuary practice, or where unburned bone and enamel do not survive. Furthermore, carbon and oxygen isotope analyses and infrared spectroscopy provide insights into the reconstruction of ancient cremation practices.
TH5-04 Abstract 02
First evidence of mobility levels from British Bronze Age cremations

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Keywords: Cremation, Mobility, Strontium

Presentation Preference - Oral

The question of Bronze Age mobility has been central to many discussions of the period. In Britain, such discussion has been largely centered on the use of cremation as a mortuary rite from the end of the Early Bronze Age, which has meant that human remains could not be subject to isotopic analysis. Whilst there is good isotopic evidence for different mobility patterns in the Beaker period, in later periods we can trace only the movement of artefacts and not the movement of people. Since the publication of a new method for carrying out strontium analysis of cremated remains within the last two years (Hever, et al. 2014; Snock, et al. 2015), a whole new area of analysis has therefore opened up. This paper presents the results of the first analysis of mobility in cremated human remains from the British Bronze Age. The remains come from the barrow cemetery of Over in the Cambridgeshire fenlands, which is one of very few cemeteries where the barrow mounds survive and have been excavated using modern techniques. This analysis therefore offers a unique opportunity to understand how mortuary practices, and changes in mortuary practices over time, are related to the mobility of the people buried within a barrow cemetery.

TH5-04 Abstract 03
„Cremated Dating“ Case studies for the dating of Bronze Age cremation burials from Hungary

Author: PhD Dari, J., Dele Miguez, Debrecen, Hungary (Presenting author)
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Keywords: AMS dating, Cremated remains, Early & Middle Bronze Age in Hungary

Presentation Preference - Oral

Cremation of dead bodies was a very common practice in the Carpathian Basin during the early, middle and late phases of the Bronze Age. The scientific value of cremated remains were undervalued due to the small amount of calcinated bones and the microfragmentation of human bones that provide only limited bioanthropological information. Beside the restricted information archaeologists have to face with methodological problems. One of these problem is that sometimes it is not easy to collect the tiny cremated bone pieces within a cremation burial. Another, “burning question” is the dating of the cremated bone remains.

Contrary to the nearly 70 year old development of the traditional 14C dating, the methodology applicable to cremated bone is now in a phase of maturation. The aim of our presentation is to provide case studies of several Early and Middle Bronze Age (2600/2500–1600/1500 BC) cremation burials from eastern, central and western Hungary. This is important because sometimes because sometimes there is a poor fit between the relative chronological scheme and the still building radiocarbon chronology of the region, mainly because of the dominant burial practice of cremation. The presented, selected assemblages are special because they contain not just calcinated bones, but unburnt animal bones as gravegoods. The dating of these assemblages, and testing of burnt bone, cremains, forensic anthropology

Presentation Preference - Oral

Since the 1980s, cremation has become the fastest growing area of the U.S. funeral industry. At the same time, the number of optimizations against funeral homes and cremation facilities has increased. Forensic anthropologists are often asked to determine whether the contents of an urn are actually cremated bone, and to address questions regarding the identity of the remains. This study uses both metric and chemical analyses for resolving a case of contested cremations. A cremains weight of 2021.8 g was predicted based on the deceased’s reported stature and weight. However, the urn contents weighed 173.5 g. The urn contents also contained material consistent with cremains (e.g., loose ash, cinnabar, wood ash) and non-cremains (e.g., bone, ceramics, rubber, metal).

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Up in Flames: Animals, People, Identity and Cosmology in Anglo-Saxon East Anglia, UK

Author - Rainford, Clare, University of Bradford, York, United Kingdom (Presenting author)

Presentation Preference - Oral

Human and animal co-burials are a critical resource in zooarchaeology, presenting instances where a personal connection can be demonstrated between people and animals. Animal remains have been recognised in British cemeteries from the 5th to 7th century, 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 potentially under-exploited, due to difficulties on the one hand of accurate identification, and on the other of paltry retention of material from antiquarian and later excavations. As analysis of animal remains in cremation burials becomes more common (although still far from universal), the increasing quality of the available data makes possible new and more detailed analyses of these complex, multi-faceted pyre goods. This paper will review new and existing evidence from early Anglo-Saxon cemeteries in East Anglia to explore how animals were used in funerary rites. Animals were a fundamental and ubiquitous part of early medieval society, providing a context for human action and perception and acting dynamically within that context. Their role in cremation rites is considered to be not simply symbolic, but as a complex interaction between identity, agency and cosmology.

TH5-04 Abstract 08

Cremation in the Scottish Chalcolithic

Author - Bloom, Anna, UCL Institute of Archaeology, London, United Kingdom (Presenting author)

Keywords: Beaker, Cremation, Scotland

Presentation Preference - Poster

The Chalcolithic of Britain (c.2450-2150BC) was a period of dramatic cultural change, beginning with the arrival of Beaker material culture from continental Europe. Changes brought by the ‘Beaker phenomenon’ included new forms of material culture, including the first use of metal, bringing an end to the insular Neolithic. This period also saw a shift in burial practices: cremation, common in the Late Neolithic, was replaced by a new rite of crouched individual inhumation, frequently accompanied by elements of the new Beaker material cultural package.

The changing mortuary evidence ties into a wider narrative of cultural replacement prompted by the arrival of the Beaker people and their culture. However, cremation re-emerged at the start of the Early Bronze Age, 300 years after its supposed disappearance. Was there really a 300-year hiatus in cremation practices in response to the Beaker cultural invasion? Or are we actually looking at a break in recorded evidence?

While some authors have noted the existence of occasional ‘Beaker’ cremations, these are typically glossed over or treated as anomalies. No comprehensive study has been carried out, and there is no characterisation of what the Chalcolithic cremation rite may have involved. The evidence in radiocarbon dating of cremated remains has led to a wealth of new evidence that can shed light on Beaker period burial practices and the nature of indigenous-Beaker interactions.

This poster presents a new project aiming to characterise the burial practices of Beaker Period Britain, with a discussion of the initial results for evidence of mortuary diversity in Scotland.

TH5-04 Abstract 09

Advances in 14C dating of cremated bones at HEKAL Laboratory, Debrecen, Hungary

Author - Major, István, MTA ATOMKI, Debrecen, Hungary (Presenting author)

Keywords: Excavator bias and laboratory techniques of cremation burials

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Keywords: Excavator bias, database, multi-disciplinary approach

Presentation Preference - Poster

A compilation of 14C dates over the last 50 years shows that less than 6% of all the bone dates were performed on purified bioapatite. The effective separation of the phase to be dated and the secondary calcite seems to be a challenge for researchers due to their identical chemical formula. Nevertheless physical and chemical changes which occur during the cremation process make cremated bones less susceptible to this type of contamination. In spite of all the difficulties a huge demand is shown for a reliable bioapatite preparation and measuring method since in a lot of cases dating is only possible by means of such findings.

At HEKAL laboratory, Debrecen, Hungary, we have dated several hundreds of bone samples using their organic collagen fraction. As a next step we would like to adopt a method for 14 C dating of bioapatite fraction, a process which starts with the effective extraction of the carbonate content of the samples. In the course of developing our process cremated bones from the early and middle Bronze Age (2600/2500-1800/1550 BC) were used where the expected age of the samples were detectable by dating well preserved, un-burnt bone findings from the same grave. At first, the intact bones were dated using the collagen fraction. In case of bioapatite samples, after the repetitive rinse with sodium hypochlorite and acetic acid step, the crushed and sieved samples were reacted with phosphoric acid. The revealed CO2 gas was subsequently purified from other gases, graphitized by sealed tube method and its 14C content was finally measured by the MICADAS AMS. Based on our first results fractions with different particle size (0.2-0.3 and 0.5-1 mm) yielded identical carbonate content and 14C age results. However, combining the age of the three parallel bioapatite samples we proceeded to be the same, to that of organic fraction a difference of 200-400 years was experienced presumably due to the chemical pre-treatment.

On this poster we would like to present both the evolution of our carbonate pre-treatment protocol and dating problems arisen in the case studies of the presentation entitled ‘Cremated Dating’? Case studies for the dating of Bronze Age cremation burials from Hungary.

TH5-04 Abstract 10

Excavator bias and laboratory techniques of cremation burials

Author - Mgr. Píčová, Erika, Charles University, Prague, Czech Republic (Presenting author)

Keywords: Excavator bias, laboratory techniques of cremation burials

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Co-author(s) - Dani, József, Dédi Museum, Debrecen, Hungary

Presentation Preference - Poster

The aim of our research is to assess three methods of analysis of cremation burials: computer tomography (CT), micro-excavation; sieving of burial infill. We used eight burials from Jevišovice – Předměstí site (Czech Republic) for the purpose of the study. Four burials were sieved and four burials were micro-excavated and scanned by CT. Burials under the study comprised “pit” burials, urn burials and urn-socket burials. Results show significant bias caused by possible indiscetate handling by the excavator. The most useful method for analyzing highly fragmented burnt bone samples appears to be computer tomography (CT) together with micro-excavation. When only CT is used, the precise bone identification is not possible, whereas during micro-excavation tiny objects like metal slags can be overlooked, dislocated fragments lost, and burial volume measured imprecisely. Combination of the two methods ensures that the excavator reconstructs activities of past populations and not results of his/her own procedure.

TH5-04 Abstract 11

Cinerary urns radiology and knowledge sharing: a web-based “paleopacs” proposal

Author - Innocenti, Dario, Monfalcone, Italy

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Keywords: Cinerary urns, Database

Presentation Preference - Poster

Cremation is a ritual treatment of the dead body that represents both a potential source of notices about the ancient historic societies and a real challenge for a physical anthropologist. With the introduction in the medical clinical practice of digital high-definition powerful radiological tools (MDCT, RM, QICT, CBCT etc.), is possible to carry out a non-destructive study of the cinerarium and its cremated remains in some way comparable with laboratory micro-excavation. Unfortunately, actual studies are based on a relative restricted number of cases, while the problems that we must 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, the problem of the radiological archives and to minimize the time of distribution of X-ray films, in the last ten years PACS is become a powerful system of real-time, full-time exchange medical data imaging system. Moreover, coupling a PACS with a clinical database, it's possible to create complex and useful digital shared medical records.
On the basis of this experience is possible to project and build a PACS dedicated to paleoradiological and archaeological images and data, filling the gap of the actual relative paucity and dispersion of the paleoradiological studies. This operation is not trivial because many specific problems must be solved as standardization, architecture, reliability and sharing rules of the system. A web-based, open source paleoPACS project and prototype with a section devoted to radiology of ancient cineraria is analyzed and presented.

TH5-04 Abstract 12
Complexities and considerations for the analysis of cremated remains
Author - Nicholls, Rebecca, University of Bradford, Bradford, United Kingdom (Presenting author)
Keywords: Complexity, Cremation, Strategy
Presentation Preference - Poster

This poster discusses the complexities of examining cremated bone, drawing upon examples from urnfield cemeteries in Slovenia, and Early Iron Age cemeteries in northern Croatia. Approximately 350 sets of cremated remains have been analysed as part of the ENTRANS (Encounters and Transformations in Iron Age Europe) Project. These assemblages have undergone a range of excavation and post-excavation strategies, the results of which have raised questions regarding the analysis of burnt human remains. This poster addresses the importance of context when interpreting graves containing cremated remains, as well as more practical considerations, such as the likelihood of obtaining age and sex data. Another crucial aspect when examining cremated remains is the recognition of animal bone. Commonly, the remains of animals may be removed as part of the post-excavation sorting process, but the identification of species and oxidation level can contribute to wider interpretations of funerary practices in the past. Although the analysis of cremated human bone can be problematic, this study demonstrates the benefits of investigating cremated remains as a method of elevating our understanding of funerary processes in the past.

TH5-04 Abstract 13
Cremated Human Remains of the Late Roman period of the Middle Volga Region, Russia
Author - Makarova, Ekaterina, Khalikov Institute of Archaeology, Kazan, Russian Federation (Presenting author)
Keywords: Komarovo burial ground, the Late Roman period, the Middle Volga Region
Presentation Preference - Poster

The research focuses on human remains from Komarovo burial ground (the first half of the 6th - the first half of the 7th centuries). The excavations have been conducted since 2013. Currently, 21 cremated burials have been unearthed. These burials can be divided into three groups: human, animal and mixed burials. Four burials among them can not be attributed to any of the groups due to fragmentariness and small amount of bones remained.

Human burials. The maximum size of the fragments does not exceed 40-50 mm. The total weight of bones varies from 150 to 850 grams. As regards the colour characteristics, the bones of white and pale-grey colour predominate. The colorimetric scales comparison revealed the maximum temperature of cremation that did not exceeded 700° C.

In a number of cases, the remains contain transverse fractures, frequently in a curvilinear pattern, and more irregular longitudinal splitting. These features bear an evidence that the bodies were cremated during the first months after death, when bones still contain lipids and organic elements. Animal burials. Two burials were attributed to this group. Unfortunately, the species were not identified within the framework of this research. The maximum total weigh of bones in such burials was 1 kilogram. The colour characteristics analysis showed the simultaneous presence of weakly burned, unburnt and white bones, indicating that the temperature of cremation varied from the lowest to over 800° C.

Besides the remains with thermal deformation and fissures, these burials also contain burned 'dry' bones, dehydrated and delipated at the moment of cremation.

Mixed burials. The third group contains human and horse remains, with two burials contain inhumations with animal bones. The first one contains the fragments of pelvic skeleton of horse, the second one – the pelvis, the scapula, metapodial of horse. The colour analysis of the identified human remains found the same features specific to the first group. The cremation temperature for the animal remains did not exceed 300° C.

The gender and age of cremated people was identified in 14 cases. Only one of them was a 7-8 years old children. Other burials belonged to adults. The majority of them was 45-55 years old women. Only two burials contain remains of men. The unsufficient state of conservation, fragmentation and the lack of necessary morphological markers made impossible the gender determination in 5 cases.

The further studies of Komarovo burial ground will include the application of natural scientific methods, namely spectral analysis for defining human and non-human remains, histological bone structure analyses for age determining and the analysis of the 87Sr/86Sr ratio for migration processes in the local level.

TH5-04 Abstract 14
Cremation responses to changes in ritualism, culture and technology in Iron Age and Roman Britain
Author - Carroll, Emily, University of Reading, Reading, United Kingdom (Presenting author)
Keywords: Cremation practices, Cultural transitions, New approaches
Presentation Preference - Poster

The Late Iron Age to Early Roman period in Britain was a time of immense social, economic and political transition, where native customs and Roman fashions became amalgamated; it is thus the epitome of cultural exchange and vital to our understanding of ancient interactions. Funerary rites embody social organization, technology and belief. Their manner and how they have changed over time represent these cultural transitions in the ancient world; providing an insight into the merging of ideologies, ancient body concepts and the social attitudes towards the dead. While changes in inhumations are well-studied, transitions within cremation practices have received less attention, despite being a predominant burial rite for large parts of prehistory. As a result, the nature of cremation funerals in ancient Britain and their implications of cultural exchange are not well established. This multidisciplinary PhD project is the first that seeks to address this gap in contemporary research through a combined examination of the charred wood and plant remains from cremation deposits, the anthropological analyses of the thermally altered human bone as well as their microscopic and macroscopic heat-induced alterations, inspecting both the pyre and grave goods included and analysing the spatial distribution of burials within their cemetery contexts. This presentation will introduce the project as a whole and then focus on the results of a meta-analysis of Late Iron Age and Early Roman British cremation practices. The data obtained will not only formulate a corpus of burials from the period being studied, but will also be used to establish how cremations are recorded and analysed in UK archaeology, what areas of research are incorporated and what areas are neglected. It is hoped that this presentation will not only add to the current knowledge of prehistoric cremations, but will also greatly inform the development of standard recording practices for these burials across commercial and research institutions.
Plague, an infectious disease caused by the bacterium Yersinia pestis, occurred in at least three major historical pandemics: the Justinianic Plague (6th to 8th century), the Black Death (from 14th century onwards), and the modern or Hong Kong Plague (19th to 20th century). Yet DNA from Bronze Age human skeletons has recently shown that the plague first emerged at least 3,000 years before any historical records of pandemics. Our findings open the possibility of identifying other blood-borne pathogens associated with plague for times older than previous estimates. We also identify a temporal sequence of genetic changes that lead to increased virulence and epidemic spread of plague. How and when it originated remains contentious. Here, we report the oldest direct evidence of Y. 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 Y. pestis. We find the origins of the Y. pestis lineage to be at least two times older than previous estimates. We also identify a temporal sequence of genetic changes that lead to increased virulence and the emergence of the bubonic plague. Our results show that plague infection was endemic in the human populations of Eurasia at least 3,000 years before any historical recordings of pandemics. Our findings open the possibility of identifying other blood-borne pathogens directly from human remains.

The bacterium Yersinia pestis is the etiological agent of plague and has caused human pandemics with millions of deaths in historic times. How and when it originated remains contentious. Here, we report the oldest direct evidence of Yersinia pestis identified by ancient DNA in human teeth from Asia and Europe dating from 2,800 to 5,000 years ago. By sequencing the genomes, we find that these ancient plague strains are basal to all known Yersinia pestis. We find the origins of the Yersinia pestis lineage to be at least two times older than previous estimates. We also identify a temporal sequence of genetic changes that lead to increased virulence and the emergence of the bubonic plague. Our results show that plague infection was endemic in the human populations of Eurasia at least 3,000 years before any historical recordings of pandemics. Our findings open the possibility of identifying other blood-borne pathogens directly from human remains (see S. Rasmussen, M. E. Allentoft, K. Nielsen, L. Orlando, M. Sikora, K.-G. Sjögren, E. Willerslev (2015). Early Divergent Strains of Yersinia pestis in Eurasia 5,000 Years Ago. Cell, 163, 571–582).

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 Y. pestis to cause the respiratory disease known as pneumonic plague are not well understood. By using a mouse model of respiratory infection combined with comparative genetic and genomic studies between Yersinia species, we have identified two specific events—the acquisition of the Pla protease and the inactivation of the YadA adhesin—as key steps in the emergence of Y. pestis as an easily transmissible, severe respiratory pathogen. The acquisition of the Pla protease enabled ancestral Y. pestis strains to grow to high levels in the lungs and cause a fulminating, multifocal severe pneumonia, while the loss of YadA shifted the respiratory infection from a restricted, granuloma-like pathology to a more widespread, easily spreadable 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. Anicerithis 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)

Keywords: ancient DNA, paleogenomics, plague

Presentation Preference - Oral

The bacterium Yersinia pestis is the etiological agent of plague and has caused human pandemics with millions of deaths in historic times. How and when it originated remains contentious. Here, we report the oldest direct evidence of Yersinia pestis identified by ancient DNA in human teeth from Asia and Europe dating from 2,800 to 5,000 years ago. By sequencing the genomes, we find that these ancient plague strains are basal to all known Yersinia pestis. We find the origins of the Yersinia pestis lineage to be at least two times older than previous estimates. We also identify a temporal sequence of genetic changes that lead to increased virulence and the emergence of the bubonic plague. Our results show that plague infection was endemic in the human populations of Eurasia at least 3,000 years before any historical recordings of pandemics. Our findings open the possibility of identifying other blood-borne pathogens directly from human remains (see S. Rasmussen, M. E. Allentoft, K. Nielsen, L. Orlando, M. Sikora, K.-G. Sjögren, E. Willerslev (2015). Early Divergent Strains of Yersinia pestis in Eurasia 5,000 Years Ago. Cell, 163, 571–582).

TH5-05 Abstract 05

Plague in the eastern Mediterranean region 1200-1000 BC?

Author - Prof. Wallea, Lars, University of Oslo, Institute of Basic Medical Sciences, Department of Physiology, Oslo, Norway (Presenting author)

Keywords: demographic crises, Mycenaean, plague

Presentation Preference - Oral

How do new pathogens emerge, and how do these pathogens take advantage of host processes and pathways to cause disease? Yersinia pestis, the etiological agent of plague, is a recently emerged clone of the gastrointestinal pathogen Y. pseudotuberculosis, but the specific genetic changes that enabled Y. pestis to cause the respiratory disease known as pneumonic plague are not well understood. By using a mouse model of respiratory infection combined with comparative genetic and genomic studies between Yersinia species, we have identified two specific events—the acquisition of the Pla protease and the inactivation of the YadA adhesin—as key steps in the emergence of Y. pestis as an easily transmissible, severe respiratory pathogen. The acquisition of the Pla protease enabled ancestral Y. pestis strains to grow to high levels in the lungs and cause a fulminating, multifocal severe pneumonia, while the loss of YadA shifted the respiratory infection from a restricted, granuloma-like pathology to a more widespread, easily spreadable state. Indeed, the loss of YadA by Y. pseudotuberculosis may have been a key step by which Y. pestis acquired the ability to be spread by respiratory droplets, thus enabling epidemics of pneumonic plague.
Over a period of 150 years from about 1200 BC, the Mycenaean states collapsed. The great Mycenaean centres did not decline slowly during this period, but suffered sudden destruction at the very peak of their prosperity. Few hypotheses have been proposed to explain the collapse: invasion, civil war, local risings, earthquakes and climate change. However, none of them seems to provide a satisfactory explanation of the existing archaeological material. At about the same time, similar disturbances and destruction also afflicted Cyprus, Syria and Anatolia, and the Hittite empire came to an end. The temporal and geographical distribution of these disasters and the subsequent course of events in the Aegean region show a strong similarity to developments in the European region following the two later pandemics of plague. In addition, there is strong documentary evidence that there was at least one epidemic of bubonic plague with high mortality in the eastern Mediterranean region at the relevant time. Recent analyses of Bronze Age DNA sequences resembling Yersinia pestis indicate that the infection was endemic in human populations, and that it acquired sufficient virulence to cause bubonic plague at some point in time between 1600 and 950 BC.


TH5-05 Abstract 06
Plague before the Plague: Early Bubonic Plague in Greek Medical Literature

Author - Muhall, John, Harvard, Cambridge, Massachusetts, United States of America (Presenting author)
Key words: 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 reexamination of the evidence for plague in antiquity before the Justinianic Plague.

This paper will report the conclusions of a close philological study aimed at uncovering what evidence there is for plague in the medical sources of antiquity, specifically, the Hippocratic Corpus, Rufus of Ephesus, and Galen. The picture that emerges from these medical sources is that Y. pestis was unknown to medical writers until around the 1st century AD, and then only a few generations after Rufus of Ephesus report a disease that resembles plague. The plague remains familiar to medical authors from the first century BC to the end of the first century AD, when both Rufus and Aetius both demonstrate an awareness of Y. pestis. Intriguingly, Galen, who flourished in the mid second century, only a few generations after Rufus, does not show any awareness of bubonic plague. First, this paper will demonstrate that there is no compelling evidence of Y. pestis in the Hippocratic Corpus. While the term θύμος (thymos) to describe glandular swellings appears twelve times in the Hippocratic Corpus, none of these twelve instances suggest that these swollen glands are plague adenopathy as opposed to other glandular swellings.

A passage by Rufus of Ephesus that has been preserved in the Medical Collections of Orbasius contains the first description of a disease that we can confidently identify with plague. Rufus calls the disease “pestilential boubones” and details it in a way that connects it with the classic descriptions of Y. pestis and to sixth-century descriptions of the Justinianic plague.

In this passage, Rufus cites three little known authors who also knew of “pestilential boubones”: Posidonius, Dioscorides, and Diosynus Kuros. The names Poseidonios and Dioscoridius could correspond to a number of possible figures, though the reference to Diosynus Kuros is likely that they refer to little known authors of the first century BC. While it was previously thought that this Diosynus Kuros was active in the third century BC, I will argue that Diosynus Kuros could have been active anytime before the first century AD.

Finally, I will argue that, like the Hippocratic authors, there is no robust evidence that Galen was aware of bubonic plague. The uses of the term boubone in Galen refer most often to common lymphangitis and do not resemble plague adenopathy. While the passage in Rufus suggests that Y. pestis was active in the Mediterranean from around the first century BC to the first century AD, after the first century AD there are no new descriptions of Y. pestis until Late Antiquity.

TH5-05 Abstract 07
Placing the Plague of Justinian in the Yersinia pestis phylogenetic context

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Keywords: ancient DNA, phylogenetics, plague of Justinian

Presentation Preference – Oral

The phylogenetic tree of the plague-causing pathogen Yersinia pestis has expanded in the last five years to include ancient draft genome sequences, which have allowed facets of the history of this disease to be explored in ways that were previously impossible. This pathogen has caused at least three human plague pandemics: the Plague of Justinian (6th–8th centuries), the Black Death (1347–1352 with waves continuing from the 14th through 16th centuries) and the modern pandemic (19th–20th centuries), which have all been genetically characterized. Here we present the draft genomes obtained from two individuals who died in the first pandemic that allowed for genetic characterization of this pandemic. On the basis of maximum likelihood phylogenetic analyses, we conclude that the Y. pestis images that caused the Plague of Justinian and the Black Death 800 years later were independent emergences from rodents into humans. These results show that rodents species worldwide represent important reservoirs for the repeated emergence of diverse lineages of Y. pestis into human populations. In contrast, recently published Y. pestis sequences from the 18th century plague outbreak in Marseille, France do show ancestry in the strains obtained from Black Death victims, but are not represented in any sampled modern lineages. Taken in concert, the phylogenetics of ancient pandemic Y. pestis genomes reveal that the geographical spread of the disease and subsequent establishment of rodent reservoirs varied between pandemics.

TH5-05 Abstract 08
Early medieval burials of plague victims: examples from Aschheim and Alteneding (Bavaria, Germany)

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Keywords: early medieval cemetery, Justinianic Plague, Upper Bavaria

Presentation Preference – Oral

With this paper, we present burials from two early medieval cemeteries, Aschheim-Bajuwarenring and Alteneding/Kleitham, where the causative agent of plague, Yersinia pestis, could be detected palaeogenetically.

The burials from the early medieval cemeteries of Aschheim-Bajuwarenring and Alteneding/Kleitham 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 Munich grave plain that “[…] all 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 […].” (Procopio, De Bello Persico II 26, 13). 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.

The Justinianic Plague was nevertheless a disease that affected Europe in the Late Antiquity, but its occurrence appears not everywhere as catastrophic as the written sources make us believe.

TH5-05 Abstract 09
Analysis of a high-coverage Yersinia pestis Genome from a 6th Century Justinianic Plague Victim

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Keywords: ancient DNA, phylogenetics, plague of Justinian

Presentation Preference – Oral

The phylogenetic tree of the plague-causing pathogen Yersinia pestis has expanded in the last five years to include ancient draft genome sequences, which have allowed facets of the history of this disease to be explored in ways that were previously impossible. This pathogen has caused at least three human plague pandemics: the Plague of Justinian (6th–8th centuries), the Black Death (1347–1352 with waves continuing from the 14th through 16th centuries) and the modern pandemic (19th–20th centuries), which have all been genetically characterized. Here we present the draft genomes obtained from two individuals who died in the first pandemic that allowed for genetic characterization of this pandemic. On the basis of maximum likelihood phylogenetic analyses, we conclude that the Y. pestis images that caused the Plague of Justinian and the Black Death 800 years later were independent emergences from rodents into humans. These results show that rodents 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.
Understanding Black Death: News from Denmark

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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 is based 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 epidemics in recorded history is still an incredibly contentious subject, and our understanding of the circumstances affecting the health of populations around the period of the Black Death epidemic is limited. Yersinia pestis has been identified in Black Death cemeteries in Europe, but thus far, no published work is available from Denmark. By building a better understanding of the pathogen load of the populations in Denmark at the time of the Black Death crisis, as well as both before and after the epidemic, it will be possible to attain a better understanding of the role Yersinia pestis may have played in the population, and of the immune changes and responses to the epidemic. The current paper presents preliminary results from an international team combining bioarchaeological and molecular methods to gain a better understanding of the epidemiological patterns surrounding the Black Death epidemic in Denmark.

TH5-05 Abstract 13

A demographic history of the plague bacillus revealed through ancient Yersinia pestis genomes

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The Black Death epidemic of 1346–1353 had a devastating impact on the population of Europe, leading to significant demographic losses. However, our understanding of the Black Death is based mainly on historical accounts and clinicopathological studies, and the causative agent of the plague (Yersinia pestis) has been subject to much debate. Recent advances in molecular archaeology have provided new insights into the demographic history of this epidemic. This study aimed to investigate the demographic history of Yersinia pestis genomes from medieval Europe. We used ancient DNA methods to analyze Yersinia pestis genomes from human skeletal remains from the mid-14th century in Denmark. Our results suggest 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 16th century, when the disease essentially disappeared. Initial sequencing of Yersinia pestis genomes from London victims of the second plague pandemic, identified the Black Death as the event that gave rise to most of the Y. pestis genetic diversity present around the world today. This result raised further interest regarding the relationship of this lineage to the ones associated with post-Black Death outbreaks, and to modern plague lineages. Recent climatic and ancient DNA studies have attempted to explore these relationships, although a clear consensus is still yet to be reached. Here, we present three historical Y. pestis genomes from the second plague pandemic in Spain, Russia and Germany. Our results provide support for low genetic diversity in the plague bacterium during the Black Death, followed by a subsequent eastward travel of lineages to later become the source for the worldwide third plague pandemic, which began during the 19th century in China. In addition, our data from a post-Black Death outbreak in Germany are best explained by the persistence of a European plague lineage that is now likely extinct.

Keywords: ancient DNA, Black Death, plague

Presentation Preference - Oral

In recent years, the study of archaeological landscapes has witnessed an increased use of advanced remote sensing techniques such as geophysics, lidar and satellite. Aerial archaeology is another important tool for archaeologists working with landscape archaeology, and has been so for decades. Advanced techniques are used separately or combined in integrated approaches applied to larger or smaller landscapes with the aim of deducing information on landscape use in prehistory. The results of such projects are often presented with a certain focus on the techniques themselves and the fascinating possibilities they present, or simply demonstrate a range of new discoveries and more or less spectacular results. In this session we want archaeologists or other scholars to present results that are not merely of technical interest, but where the use of advanced techniques in archaeological projects has significantly increased cultural-historical knowledge. We are looking for good examples of how the use of advanced technology has provided new information regarding prehistoric landscapes through the investigation of archaeological sites and monuments, and where advanced techniques have contributed to a revision or reinterpretation of our present understanding of life in prehistoric societies. We also welcome presentations on a more comprehensive theoretical level concerning the intersection between the use of advanced remote sensing techniques and how we, as archaeologists, understand and act with landscape issues, bridging the gap between technologically based research and the human perception of the landscape. Contributions can be presentations of final or preliminary results from research and development projects in all kinds of landscapes and archaeological contexts throughout Europe or from other continents.

Keywords: Cultural-historical knowledge, Landscape archaeology, Remote sensing

Presentation Preference - Regular session

The sites are roughly dated between c. 4000-2500 calBC, to the period of the suggested Mid-Holocene population peak in Northern Ostrobothnia, Finland. LiDAR mapping has recently become a standard tool in archaeological survey in Finland. In 2015, a set of LiDAR visualisations from Northern Ostrobothnia were investigated and a large number of housespits sites were later inspected in terrain. A total of 481 new housespits were recorded during field survey thus bringing the River Silljoki area to one of the densest occurrences of pithouses in the country, only rivaled by similar areas in the River Ijoki (Karikkilä) and River Kemijoki (Tömävesi) areas in the north. The sites are roughly dated between c. 4000-2500 calBC, to the period of the suggested Mid-Holocene population peak further stressing the relevance of this period in Finnish archaeology. It is not only the large number of the pithouses themselves, but the complexity of the settlement patterns as well opening exciting new avenues to the study of complex hunter-gatherer societies in the region.

Keywords: Lidar, Neolithic, settlements

Presentation Preference - Oral Additional information

Changing the perspective of Neolithic civilization: Sopot culture tells discovered by remote sensing

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Keywords: GIS, prehistoric enclosures, Sopot culture

Presentation Preference - Oral

The Eastern Croatia can be considered as the heartland of the Neolithic community known as the Sopot culture. Numerous sites of this culture are already known, and only a small number of them were excavated. The project of aerial archaeological survey...
of eastern Croatia, including other techniques of remote sensing such as satellite infrared images, resulted in discovery of many previously unknown prehistoric sites. We should emphasize a large number of settlements with circular enclosures which can be associated to them. Since these sites are almost invisible in the landscape, the use of remote sensing techniques for their study is not new, the development of Roman military archaeology in recent decades greatly demanded a significant renovation of the methodological approaches. In this way, we put into practice a low-cost methodology combining historical and modern aerial photography, satellite imagery, airborne LiDAR, GIS and conventional archaeological field survey techniques. These tools actually provide a new and qualitatively differential approach, allowing us to study the spatial, locational and morphological characteristics of these sites, and thus leading to a more contextualising approach. In this paper, we will focus on the differential analysis of the relationships between findings and their related anomalies clearly showed some typical shapes of the anomalies. The main kinds of findings, particularly tombs and baetylus, showed characteristics anomalies that are repetitive all over the excavated area. Starting from these remarks, all the QPR data acquired during the entire survey, from 2013 to 2015, over an area of about 12 hectares, were analysed to detect patterns which matched those identified in the excavated area. Basing on this kind of approach, it was possible to try an interpretation of the QPR data also in the unexcavated areas.

The major reason why these specific anomalies shapes are flat under the investigation area, display shapes very similar to those from baetylys. 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 make 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 QPR data to an area wider than the investigated one. Actually, the area investigated from the archaeologists is less than 1,000 square metres that is very small if compared to those surveyed by QPR (about 130,000 square metres).

The whole pattern and extension of archaeological remains show that in the site of Mont长辈e Prama the archaeological area is wider than the excavated one. It is plausible to suppose that tombs and other kinds of anomalies exist at least for hundreds of metres both northward and southward from the archaeological digs.

In years 2010-2011, a LiDAR survey campaign was led by the «Group of Public Interest of the Seine- Avant-» (GIP-SA) from the upstream of Rouen to the English Channel with the aim of drawing up accurate topography of the Seine valley and watershed adjoining the river. This data, available on over 1,100 km², has for primary purpose of anticipating the rise of saline, with the global climate changing, by calculating the defense structures against the sea accordingly.

This very appropriate campaign had covered the public forests and also numerous private woods of lesser importance. The data have been processed jointly by the French Ministry of Culture and Communication and the Office National des Forêts. They generated images ready to be used in archaeological analysis on more than 300 km² (situation in 2015 - to be increased in the future). The contributions are considerable, under forest cover or not, but the zone with woodland needed to be dedicated first for the virtual forest removal.

A rereading of the regional archaeological documentation then forces us to reconsider the state of knowledge, particularly in terms of regional archaeological mapping. Dozens of new settlements, or anomalies, need to be added in the National archaeological map and inventory. In the same meaning, the global understanding of the territorial organization from Gallic and Gallo-Roman periods is considerably renewed. Indeed, the opipila (hill forts) that did not this part of the Seine valley are particularly well readable, and the understanding of their insertion in the territorial organization becomes more relevant. Their morphology and their relation to the topography and the road system are greatly reinterpreted. In addition, the “antique” road called “Chausée Jules César”, serving the plateau on the north side of the Seine, finally shows his consistency as a strong element of organizing Caléts and Vélicocasses pagi.

This organization seems largely inherited from a structure already in place before the end of the Iron Age. Connected with the latest studies in geoarchaeology and archaeogeography, the new data from LiDAR also reveal the great adaptation of the drawing of the gallo-roman road to the territory through which it passes (topography, hydrology, topology). Collecting informations and data analysis will continue for several years, but the data from the LiDAR have already been used in two PhD and several Master’s degrees. Two systematic excavations, initiated 2012, are strictly the result of the new opportunities offered by this tool under development. Medieval, modern and contemporary times, also benefit from this data renewal. But many things are still to come.

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**TH5-06 Abstract 05**

Airborne LiDAR data for the study of Roman military presence in NW Iberia

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Keywords: Archaeological prospection, LiDAR, Roman Military Archaeology

Presentation Preference - Oral

The Roman military settlements are usually characterized by the perishable nature of the structures and the material culture associated to them. Since these sites are almost invisible in the landscape, the use of remote sensing techniques for their study became essential. Although the use of certain remote sensing tools - i.e. aerial photography - on this issue in the Iberian Peninsula is not new, the development of Roman military archaeology in recent decades greatly demanded a significant renovation of the methodological approaches. In this way, we put into practice a low-cost methodology combining historical and modern aerial photography, satellite imagery, airborne LiDAR, GIS and conventional archaeological field survey techniques. These tools actually provide a new and qualitatively differential approach, allowing us to study the spatial, locational and morphological characteristics of these sites, and thus leading to a more contextualising approach. In this paper, we will focus on the differential analysis of the relationships between findings and their related anomalies clearly showed some typical shapes of the anomalies. The main kinds of findings, particularly tombs and baetylus, showed characteristics anomalies that are repetitive all over the excavated area. Starting from these remarks, all the QPR data acquired during the entire survey, from 2013 to 2015, over an area of about 12 hectares, were analysed to detect patterns which matched those identified in the excavated area. Basing on this kind of approach, it was possible to try an interpretation of the QPR data also in the unexcavated areas.

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The whole pattern and extension of archaeological remains show that in the site of Mont长辈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.

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**TH5-06 Abstract 06**

Assessing ephemeral protolithic occupation by off-site geophysical prospection in Calabria (Italy)

Author - De Nael, Wiese, University of Groningen, Groningen, Netherlands (Presenting author)
Between 2011 and 2014 the authors investigated in detail the protohistoric land use and occupation of the Raganello River basin in southern Italy, which had previously (2000-2010) been archaeologically surveyed by the University of Groningen Institute of Archaeology. These investigations aimed at fine-tuning non-invasive archaeological prospection methods for ephemeral archaeological remains and at mitigating pervasive research biases in the study of protohistoric land use. Here we report on only one aspect of this wide-ranging project, namely the use of geophysical prospection as a means to avoid undue focus on known ‘sites’ and/or elevated-density peaks in the archaeological surface record.

We first present the experimental application of magnetic-based geophysical techniques for the detection of ‘non-sites’, i.e., archaeological features without any apparent surface expression, in three landscape zones with different geology, morphology and soils, and with potentially different archaeological records. In the sandy and gravelly soils of the foothill zone bordering on the coastal plain of Siracusa (100-400m asl), an exploratory swath of magnetic gradiometry across the already intensively field-walked agricultural area ‘Contrada Damale’ revealed evidence of anthropogenic features without associated surface artefact scatters. Some of these features have direct parallels with archaeologically relevant anomalies (hut foundations) detected on known protohistoric surface sites, and show that settlement densities have been seriously underestimated. At the Monte San Nicola hilltop, a large-scale magneto-meter survey on the sixty soils of the Pito-Peistocene marine terraces landscape (50-500m asl) resulted in a set of circular pit-like anomalies which, after an intensive fieldwalking survey, could be related to diffuse pottery of the Late Bronze Age / Early Iron Age. Now believed to be the partially ploughed-out remains of a cremation cemetery, the experiment has added a rare example of this site type. Finally, in the generally eroding upland valley at Contrada Madalena, where soils consist of schists and marls (700-1000m asl), large-scale on-off site magnetic gradiometry did not result in any archaeological features. However, some seemingly natural magnetic anomalies turned out to have a complex genesis which is still relevant to our understanding of the archaeological surface record. Besides these intensive geophysical studies, we also collected long transects of magnetic susceptibility measurements in all three landscape zones to determine the geological background to the magnetic signatures and to any anthropogenic and natural magnetic anomalies would be distinguishable. We discuss several examples of gridted and ungridded on-site MS surveys to demonstrate the effect and implications of this approach.

The integration of new methods and approaches is a topic of a long and heavily polarised national debate with a growing number 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 thought 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 substantial progress of the “Hidden Cultural Landscapes of the Varde Stream area” project seemed a natural extension and possible travel route inland. On numerous occasions, trade and North Sea contact have been confirmed, shown and presented in conference papers and other presentations. These new sites have changed, and continue to change, the understanding of past landscapes.

The presentation will deal with the methodological approaches and preliminary results of the “Hidden Cultural Landscapes of the Varde Stream area” project. The project’s study area is an area extremely abundant in archaeological remains and has 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 circles (aerial) survey in Poland).

Non-invasive techniques in Poland are viewed as pre-extraction 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 uninformative 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.

Remotely Visible? The Search for Communities within the Irish Landscape
Author - Curran, Susan, UCD, Belfield, Ireland (Presenting author)
Keywords: Integration, Landscape Archaeology, Remote Sensing
Presentation Preference - Oral
More than 1,000 years on, early medieval ecclesiastical and secular sites are still clearly visible on the Irish landscape, marking the locations of long abandoned settlements. This complex period saw the introduction of Christianity to Ireland and resulted in a set of circular pit-like anomalies which, after an intensive fieldwalking survey, could be related to diffuse pottery of the Late Bronze Age / Early Iron Age. Now believed to be the partially ploughed-out remains of a cremation cemetery, the experiment has added a rare example of this site type. Finally, in the generally eroding upland valley at Contrada Madalena, where soils consist of schists and marls (700-1000m asl), large-scale on-off site magnetic gradiometry did not result in any archaeological features. However, some seemingly natural magnetic anomalies turned out to have a complex genesis which is still relevant to our understanding of the archaeological surface record. Besides these intensive geophysical studies, we also collected long transects of magnetic susceptibility measurements in all three landscape zones to determine the geological background to the magnetic signatures and to any anthropogenic and natural magnetic anomalies would be distinguishable. We discuss several examples of gridted and ungridded on-site MS surveys to demonstrate the effect and implications of this approach.
The use of Remote Sensing in studying the former battlescape the Great War, despite numerous written sources. In our presentation we will focus on showing the ways in which the Advanced “Archaeological revival of memory of the Great War. Material remains of the life and death in trenches of the Eastern Front and - Oral sufferings, a situation with too many parallels to our own time! have made it possible to investigate a military campaign and even interpret its consequences. By doing so, we can begin to as defensive positions or used for temporary camps. It has proven to be the most effective method for mapping settlements - Oral the defenders time to gather reinforcements. But due to a number of circumstances this did not happen in 1567. Instead the unfortunate peasants got in harm’s way… From the cadastral registers of the following year the extent of the catastrophe can be estimated. A whole region was devastated, its villages and farms appear as “plundered”, “burned”, “destroyed” or “laid waste” in the written sources. However, this could have been avoided. A well planned system for defense in depth was established before the war. Both the Swedish and Danish forces had been built in strategic positions along the river valley at a distance of about one day’s march from each other. Used correctly, these simple fortifications would have slowed down an invader, wasting his strength while giving the defenders time to gather reinforcements. But due to a number of circumstances this did not happen in 1567. Instead the unfortunate peasants got in harm’s way.

The remains of these defenses and their historical importance went almost unnoticed until recently. The research project Getarygen 1567 broadened its scope after having located and investigated a battlefield from the conflict. By using combination of written sources, LIDAR, aerial photo scans and GPR it has been possible to trace both the preparations made by the Swedish forces and the tracks of the Danish army. Careful analysis of LIDAR data explains why certain sites were chosen for defensive positions or used for temporary camps. It has proven to be the most effective method for mapping settlements that vanished during the events 450 years ago. The importance of remote sensing for the Getarygen 1567 project cannot be overstated. In a densely forested landscape, very different from what it looked like in the mid-16th century, modern techniques have made it possible to investigate a military campaign and even interpret its consequences. By doing so, we can begin to understand the true conditions of the local population in a border region. People were subject to recurring warfare and suffering, with a situation too many parallels to our own time!

Digging into the Swiss Neolithic with Modern Methods – 3D Documentation and Biochemical Analyses

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Keywords: 3D documentation, bioarchaeological analysis, Neolithic
Presentation Preference - Oral

Switzerland is known for the well-studied settlement archaeology of the Neolithic period however up to now little is known about the population who inhabited those settlements. With the recent finding of a Neolithic dolmen near Bern a unique opportunity was provided to study Neolithic human remains. The project therefore focuses on dietary habits, migration and population dynamics and includes human remains of further Neolithic sites in Switzerland.
Since such exceptional findings have high scientific potential it is of great interest for an interdisciplinary project. Photogrammetry and 3D scanning were used as the documentation method at the excavation and allowed quick and detailed drawings of scaled plans. To keep the contamination of human remains as low as possible the excavators used various protection equipment.

The human remains are morphologically analysed, the minimal number of individuals is calculated, stable isotope analyses of the isotopes carbon, nitrogen, sulphur, oxygen, hydrogen, strontium and lead will be performed in order to investigate the dietary habits, possible migration patterns and climatic conditions of this time. Furthermore, the ancient DNA will be investigated for population genetics and also to gather information about phenotypes and genetic relationships.

Radiocarbon dating will be performed in order 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 admixture events of Neolithic Europe. So far little is known about the population 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.

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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) landscapes in this area of 274 km². The approach of surveying for new sites has been employed by means of GIS and LIDAR modelling as well as actual excavations. Here we present primary results of this endeavor as well as shortfalls of GIS and LIDAR modeling if it is not used together with an actual archaeological fieldwork.

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TH5-06 Abstract 19

Unique burials found in the ancient necropolises in Crimea with the magnetic survey in 2014-2015

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Keywords: late Scythians, burial items, gold jewelry, magnetic survey, North-Western Crimea, ancient necropolis
Presentation Preference - Poster

Excavations of the necropolises are extremely important for understanding the synchronous with the graves historical processes. The funerary objects, visible on the surface, in most cases repeatedly robbed. Situation with underground cemeteries, which are not visible on the surface, is different. Although they, too, went looting extensively in Crimea, but the invisibility of these objects, to some extent, protects them from robbers. But for the same reason they are difficult to detect for archaeologists too. One of the search options to such objects is the use of magnetic survey.

In 2014-2015 gg. researchers from Tula and Simferopol have carried out magnetic survey at several cemeteries of the Western Crimea. Excavations of the anomalies have revealed burials, which was not robbed, or, at least, not robbed in modern times. In the necropolises of the settlement Dan-Baba studied three not robbed ground children's graves with a variety of implements and unique family stone crypt with numerous graves of I c. BC. It was found numerous burial items, among which glass, pottery red lacker and stuffed objects, 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 (priezakas?). With her, perhaps, connected the specific cult vessels - stuffed incense burners, large non-Black Sea sink, numerous gold objects painting dressing, pendants, rings. Another not robbed crypt was discovered in the necropolis of the ancient settlement Kultuch. In the chamber of the crypt detected 8 adults burials, arranged in two tiers one above the other. The latter burial of the upper tier are made in a stretched position on the back with a different position of the limbs. One burial was in a coffin, which is partially preserved the contours of wood decay and iron nails. Upper burial overlap the lower tier, which lay on the floor of the tomb chamber. Of these, in relative anatomical order remained only one skeleton, and the rest were in a fragmented state.

Obviously, the people, who are represented by these bone materials, were first buried in the crypt. Later their remains destroyed, when clearing the space for the next burial. Accompanied the deceased burial items presented with beads, simple, red lacker and stuffed pottery. Iron knives, rare types of fibulas, arrowheads, lead rings, pendant made of yellow metal, moon-shape amulet, plaques and belt details.

The investigated crypt was probably used during the second half of I c. BC - first half of I c. AD and refers to the late Scythian architectural culture.

Work was carried out by the grant RFBR Nr. 14-06-90403 “Study of underground ancient necropolises of the Western and Eastern Crimea with the help of magnetic survey.”
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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Presentation Preference - Poster

Archaeological site Virje is situated in the Croatian lowland, on the right bank of the upper course of Drava river. On a slightly sloped area named Sušine, parts of a primary iron processing smelting workshops were discovered and explored. Since these types of sites are quite rare in northern parts of Croatia, and in order to get a better understanding of the development of the site, noninvasive methods were applied. With the help of magnetic method, measurements of magnetic susceptibility and shallow drilling, waste disposals of a workshop, few pit furnaces from the Late Roman period (4th and 5th century), as well as settlement remains from Late Iron Age (3rd/2nd and 1st century BC) were discovered. Additionally, geophysical results applied on digital elevation model in combination with aerial photography were carefully analyzed and compared with excavated archaeological structures. All the gathered information importantly contributed and changed our views on this unique multi-periodical site and its environment.

Presentation Preference - Regular session

Skeletal remains unearthed from archaeological sites are one of the few direct testimonies which offer us the opportunity to gain insight into past people's lives. A substantial part of a person's life course relates to diet and nutrition, since it reflects important cultural and social behaviors. This session will explore how archaeologists, human osteologists and historians implement interdisciplinary techniques in their research to deal with the concepts of diet, health and disease.

The integration of modern methods in order to reveal dietary patterns of past individuals has improved significantly in recent years. Interdisciplinary approaches, such as combining knowledge of bone chemistry with paleopathological analysis, have been developed to investigate the relationship between diet and disease and the connection between health and different aspects of society. Furthermore, because of rising issues regarding destructive sampling on bone and teeth, the possibilities and benefits of non-destructive methods, such as the study of dental calculus or the use of x-ray, as a proxy for invasive paleodietary analyses, have been acknowledged by researchers.

As it has become increasingly necessary to adopt a diverse approach to archaeological research, this session is designed to showcase the innovative and interdisciplinary nature of new investigations into diet (and its effects) in the past, and suggestions for topics include:

- Relationship between environment and diet/health:
  - pre-industrial vs. industrial health
  - rural vs. urban health
  - the effects of natural disasters on health (e.g. famines and epidemics caused by crop failure, climate change, etc.)
  - zoonoses and human animal interaction
- Diet/health and culture:
  - Historical understanding of health (e.g. medicinal use)
  - social identity and health
  - children vs. adults
- Interpreting food intake:
  - Historical sources (e.g. demographic issues) vs. archaeological evidence
  - new scientific approaches (stable isotope studies, dental calculus,...)
- Discussions of the pros and cons of interdisciplinary research

Presentation Preference - Poster

Multi-level approaches to dietary reconstruction in Anglo-Saxon to Medieval UK

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Keywords: dental calculus, diet

This presentation focuses on the use of complementary methods for dietary reconstruction in a number of Early to Late Medieval assemblages from Leicestershire and Rutland, in the East Midlands, UK. These methods include the macroscopic analysis of dental wear in the anterior and posterior dentition employing estimates of the area of exposed dentine on the occlusal surface of all teeth, as well as microscopic analysis of the dietary debris imbedded in dental calculus deposits (mineralised dental plaque).

Such a combination of techniques has rarely been applied to date, and never before in the region examined. These assemblages were selected because dietary reconstructions, especially for the Early Medieval period, are a primary area of interest highlighted by the Archaeology Research Agenda for the region.

The Early Medieval material under study dates to 500-900 AD and originates in the Anglo-Saxon cemeteries of Empingham and Rothley, while the Late Medieval material dates to 1250-1450 AD and originates in the cemeteries of St. Michael's and St. Mary's.
St Peter's, located in the North East quarter of Medieval Leicester. The individuals selected for this study belonged to different social groups, the elite and the poor, offering a unique perspective on social differences in food quality. The bioarchaeological methods used in the study of dietary patterns in this material offer much greater resolution than any of these methods used in isolation. In specific, macroscopic dental wear provides an overall picture of the wear accumulated on the teeth throughout the life of the individual, and its degree and pattern (bilaterial asymmetry, differential expression in the anterior versus posterior dentition) can provide insights into the intrinsic toughness of the food consumed as well as the extent of food processing. However, this method cannot provide direct information on the actual foodstuff that entered the mouth. The analysis of dental calculus dietary microremains can fit in this gap, since dental calculus constitutes a primary depositional environment within the mouth and provides information on the exact foodstuff that entered the mouth. The differentiation of the calculus formed. This approach can identify a variety of plant micro-remains originating from food consumption often not available from traditional archaeological deposits due to preservation bias.

The combination of the above methods offered important insights to the evolution of diet from the Anglo-Saxon to the medieval period as well as to social differentiations during medieval times. Coupled with historical evidence and archaeological information derived from the material cultural remains, the proposed multidisciplinary bioarchaeological approach has the potential to enrich our understanding of past dietary patterns by elucidating complementary trends at the macroscopic and the microscopic level.

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**THS-07 Abstract 02**

**PaleoNutrition, Coprolites, Dental Calculus, and the Celtic Curse**

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**Keywords:** dental calculus, diet reconstruction, nutrition

**Presentation Preference** - Oral

In the first study of coprolites and dental calculus from the same individuals, we examine and compare dietary reconstruction from these two proxies. A population of over 500 individuals from two Early and Late Christian cemeteries in Huesca provide a human osteological record against which to compare the dietary proxies. The skeletal remains yielded evidence of numerous anomalies including orbitalis orbitalis, suggesting the possibility of iron deficiency anemia, and spinal fusion typical of ankylosing spondilitis, which were examined for pollen, phytoliths, microfossil remains, and faunal bone. The resulting dietary record was compared across males and females and by age group for both components of the diet and dietary breadth. Diet included a grain (sorghum), multiple vegetables and fruits indicating agriculture, and meat (bovine, 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 highlight those differences. Nutritional assessment of the diet included observations concerning iron, with emphasis on bio-availability. For instance, phytates, abundant in sorghum grains, inhibit iron absorption. HFE gene mutation sequencers iron in bodily tissues rather than eliminating it (hemachromatosis). Ancient DNA analysis that will include mapping the two alleles associated with this gene mutation is in progress. XRF analysis of dried human blood has detected elemental iron, suggesting this technique might provide preliminary data to assess relative iron loads in the tissues. First tier testing focuses on those skeletons and indirectly 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 records 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 base of this larger investigation into the Celtic Curve (Hemachromatosis). Today, northern Europeans (and those of northern European descent) carry the majority of the genes for hemachromatosis. This, and other studies of similar nature, cross the boundaries of scientific study to link genetics, human osteology, diet, and nutrition. We used coprolite and dental calculus to identify and evaluate the diet of individuals buried in two Early and Late Christian cemeteries.

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**THS-07 Abstract 03**

**Non-Destructive Trace Element Analysis of Human Bones to Examine Diet and Mobility**

**Author** - Prof. T. Kotob, Robert, University of South Florida, Orlando, United States of America (Presenting author)

**Keywords:** ancient diet, bone chemistry, elemental analysis

**Presentation Preference** - Oral

The theoretical basis for elemental analysis of human diet and mobility is well-established; yet until recently the number of studies done is few and far between. Instead, analyses of carbon, nitrogen, oxygen, and strontium isotope analysis have dominated “bone chemistry” studies over the last 25 years. Nevertheless, elemental analysis of calcium (Ca), iron (Fe), barium (Ba), strontium (Sr), lead (Pb), zinc (Zn), arsenic (As) and other elements can support and supplement isotope-based interpretations, and be of significant use in cases where bone collagen is not preserved. Elemental analysis, however, has potentially greater concerns than isotope studies, due to degradation and contamination of the mineral portion of bone. Also, most previous elemental studies have been just as destructive, with samples well-cleaned, ashed, and put into solution for analysis by ICP spectrometry. Over the last decade, however, non-destructive desk-top and portable (hand-held) X-ray fluorescence (XRF) spectrometers have become widely available to archaeologists. While now regularly used for trace element analysis of obsidian and other lithics, and major element composition of metals, it appears potentially useful for studies of skeletal remains as well. In the United States and other 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, milt, and aquatic resources with patterns based on sex and status. Overall, the precision of the pXRF on most elements of interest is excellent; a separate issue however is the calibration of the raw data produced and whether the results may be compared with studies done by ICP spectrometry. Further studies are being conducted on tooth enamel and roots, to test whether non-destructive analysis may be reliable for assessing childhood diets. The reliability and utility of this method of elemental analysis of skeletal remains to study ancient diets will be discussed.

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**THS-07 Abstract 04**

**Estimating 7R Variation to Develop Chronologies for Humans and Animals with Marine-Rich Diets**

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**Keywords:** Asian Arctic, Bayesian Chronological Modelling, Marine Reservoir Effect

**Presentation Preference** - Oral

Over 200 radiocarbon dates from archaeological contexts are available from the Point Barrow vicinity, along northern Alaska’s Arctic coast, which has been occupied by hunter-gatherers from the Binkin period (AD 600-900) to the present day. Interpretation of the radiocarbon dates has been hindered by radiocarbon offsets, caused by marine resources, in the diets of humans and mammals sampled for radiocarbon dating. Analysis of ancient humans from the Point Barrow vicinity have thus far produced high δ13C values between –15.7‰ and –12.6‰, and high δ18O values between <–17.1‰ and –22.4‰, indicating diets that are very rich in marine protein. Radiocarbon ages from marine-derived carbon will be anomalously old if not corrected for the Marine Reservoir Effect (MRE), the radiocarbon age offset between contemporaneous marine and terrestrial carbon. Modern MRE values from the Alaskan Arctic are highly varied, from several hundreds to over a thousand years, due to the extended residence time of 14C in oceanic environments. It is questionable how reflective modern values are of those from the past because changes in upwelling, climate, and ocean currents will inevitably result in changes in local MRE values through time. Here we present new temporally specific MRE estimates, which is the local deviation from the global surface water MRE, and apply these in a Bayesian chronological model to better estimate the timing of ancient activity.

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**THS-07 Abstract 05**

**In sickness and in health. A community in death from a Neolithic Megalithic tomb (La Mina, Spain)**

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**Presentation Preference** - Oral

In sickness and in health. A community in death from a Neolithic Megalithic tomb (La Mina, Spain)
The Megalithic tomb of La Mina (Acubilla 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, diamictically remodelled and monumentalized, thus becoming both a ceremonial site and territorial landmark. The tomb and its artefactual, faunal and human remains are in the focus of ongoing investigations focusing on cultural, social as well as bioarchaeological issues including DNA analyses (Rojo Guerra et al., 2015; Haak et al., 2015). The human skeletal remains (MNI=20) were commingled and highly fragmented due to the postdepositional remodeling, yet the osteological analysis still revealed decisive insights into the former community (Rindlisbacher, 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 individuals who lost health or resiliency 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:


A Relationship between Diet and Burial Rite at Neolithic Osłonki 1: d13C and d15N studies

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The introduction of agricultural subsistence practices is often cited as one of the key turning points in human history (Hodder, 1990, Whittle, 1996, 2003, Thomas, 1999). The consolidation of secondary farming practices however is comparatively understudied in the academic literature – even though it represents a critical step in the development of modern human populations. The introduction of agricultural subsistence practices is oft cited as one of the key turning points in human history (Hodder, 1990, Whittle, 1996, 2003, Thomas, 1999). The consolidation of secondary farming practices however is comparatively understudied in the academic literature – even though it represents a critical step in the development of modern human populations. The consolidation of secondary farming practices, and the subsequent development of food surplus, lead to greater periods of time dedicated to activities that were directly related to the social evolution of human populations (Curtin et al., 2015).

Diet, and the transition from hunter-gatherer subsistence practices to the adoption of farming techniques, is a defining characteristic of the Neolithic period in Europe (approx. 7th to 4th millennia BC). To date, the evidence for social status and rank demonstrating a direct correlation with diet via the archive of dietary stable isotope analysis from bone collagen, is largely scarce in prehistoric Europe (Knipper et al., 2019). This research presents stable isotope studies from Osłonki 1 (Osłonki 1:4300 – 4000 cal BC), a Middle Neolithic site located in North-Central Poland. It forms part of a cluster of sites belonging to the Bzowski Kujawski Group, which observe phases of occupation associated with the Linear Pottery, Lengyel, and TRB cultures. Osłonki 1 is synonymous with the presence of burials that contain elaborate copper artefacts, such as copper plaques, beads, and ribbons, in select human burials. Other individuals interred at the site have non-copper burial goods, such as Tases, bone tools, and flint - which form striking resemblance to grave goods retrieved from sites further north in the Baltic, (such as Etīķi). Finally, some human at Osłonki 1 were buried with no grave goods at all.

This study investigates a site that was culturally and economically undergoing its secondary phase of Neolithic transformation, specifically to examine the evidence for a link between food access (by δ13C and δ15N values of bone collagen), and social status.

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 ecometric methodology. This is a useful complementary tool, as the data compilation is not destructive as well as less expensive and, thus, less limited than for more complex methods. Employing human remains enables one, on the one hand, to distinguish between male and female individuals, constructing a masculinity index. And, on the other hand, to reconstruct mean height of a population as proxy for its net nutritional status. Correspondingly the anthropometric measurement captures how well a society is able to provide adequate living conditions for the population (Kormos, 1996). Essential fact is that diet and health (subsumed as the net nutritional status: Whodo et al., 1995) are closely interrelated to cultural and social behaviours respectively to socio- economic-cultural status and identity. Important aspect to consider in this framework is that also a socially continued differentiation of gender roles and related inequality in entitlements and distribution bears the danger to directly affect diet and health. As most pre-industrial societies tended to be patriarchically organised gender-related inequality potentially meant a disregard of the female part of the population (Horrell, MeAdie & Oelse, 2008). 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 enrolments, household allocations) concerning diet and health; correspondingly it can result in a diminishing nutritional status of females during their growth years. If significant this affects height dimorphism and health disparities later in life (Bogni, 1999; Ewalt & Tanner, 1978; Frongillo & Begin, 1998; Harris, Gómez & Machado, 1990; Moradi & Gunapalli, 2009; Sabir & Elbrahim, 2014). In this context, two aspects are of interest for the long-run development of well being of the total population: (1) the variation in gender inequality and its immediate effect on the net nutritional outcome. (2) the potential of an extended burden of malnutrition in females affecting also the whole next generation – via hampered foetal development of either sex due to the “small uterus effect” and inadequate maternal care also for the offspring to endure malnutrition (Barber, 1995; Currie & Vogl, 2013). 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 achieve this I compiled the observations from the 89 BC to 14th century CE. Therefore, the aim of my study can employ 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.
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

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Keywords: early Medieval, Picts, Stable isotopes

Presentation Preference - Oral

First mentioned in late Roman writings as troublesome tribal groupings north of the Roman frontier, the Picts went on to become the first kingdoms in eastern Scotland in the post-Roman period. Although current archaeological investigations are unearthing important new information about the Picts, many aspects of the Pictish past remain elusive. Given the dearth of historical sources and current lack of Pictish domestic sites and animal bone assemblages, very little is known about many economic and social aspects of Pictish lives – such as diet. The stable isotope analysis of bone collagen is useful as a means of assessing past dietary habits, particularly the relative contribution of marine and terrestrial protein to the diet. These techniques also have the potential to investigate dietary variations within groups, such as between different biological sexes or burial types.

Here, we present carbon and nitrogen isotope data from bone collagen from a number of Pictish burials and cemeteries, providing novel insights into Pictish lifeways. Data generated are compared to limited previously-published Pictish datasets and to data from other contemporary archaeological British groups. Results suggest limited intra-group dietary variability, and a relatively homogenous diet across the areas studied. Marine fish consumption is low relative to later Medieval and Viking sites in Scotland, and in comparison to contemporary Roman-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).

Stable isotope analysis now is a “golden standard” for studying variations in the past diet and life history. Previous studies performed in medieval Lithuania have shown that the human protein intake was mostly derived from C3 plants and C3 feeding animals and possibly some freshwater resources with little variation among young and adult individuals (Whitmore et al., 2014). In this study, stable isotope analysis of human skeletons from different populations representing various regions of Lithuania (16-19th c.c.) was performed. To track dietary evidences, animal bone samples from similar places and time periods were analysed as well.

The results showed significant differences in stable nitrogen isotope ratios between coastal, urban and inland site communities, meanwhile, the carbon stable isotope ratios were less variable and showed a strong dependence on the C3 plant environment. Different strategies in subsistence economy could shape the stable 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 of public health expenditure highlights both the cost of this problem to the public and the impact that poor diet can have on the social and physical aspects of peoples lives. There are many disciplines which can be used to examine the effect of food poverty on the British population, but the three involved in the research behind this paper are, nutritional epidemiology, history, and archaeology. Each of these subjects has its strengths and weaknesses but this study has attempted to understand the historical problem of food poverty which is still so prevalent today.

Nutritional epidemiology is concerned with the impact of nutritional quality on a population’s health, and is often involved in providing guidelines for public health policies. Concerned only with the recent 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 burial site and other social and cultural dimensions of any skeletal populations under investigation.

This paper aims to introduce a new method of studying diet using these three disciplines, and highlights the value of the approach in examining public health in the past and present, to make informed suggestions for the future. That modern clinical studies and surveys help to form an understanding of the past is indisputable, and the public is made aware of the osteological nature of archaeological research through high-profile cases. The role of archaeological and historical research in understanding and informing modern policies is both less apparent and significantly less explored as a research option. This paper will therefore suggest an interdisciplinary approach to the study of food poverty.

This talk is the result of research as part of a doctorate focusing on examining the dietary habits of several Early Bronze Age (3000-2000 BC) populations in Anatolia. The investigated sites are from different environmental regions and consist of late in Anatolia, Samos region, on the Black Sea coast), Tilas Höyük (south east Anatolia, Urfa region), Bademagac (south Anatolia, Antalya region), and Balıka Tepe (west south Anatolia, Isparta region). This research is incredibly significant as it is the first time that quantitative scientific methods have been used to address questions and hypotheses about dietary habits in the EBA period of Anatolia. It is the first time that stable isotope analyses have been used to study dietary habits in this first millennium BCE and is the first project of its kind both in terms of methodology and scale. Analysis of carbon and nitrogen stable isotopes (δ13C and δ15N) was employed on bone collagen from ca. 200 human and faunal osteological samples taken from the Anthropology Lab of Hacettepe University, Ankara Turkey, and was conducted at the Max Planck Institute for Evolutionary Anthropology in Leipzig, Germany. The research is a bioarchaeological one and therefore it utilises stable isotope analyses in conjunction with osteological and archaeological evidence and research to place the dietary habits of these populations within a wider framework. For example, during the EBA in Anatolia, and especially between the early and late EBA, dramatic changes are seen in architecture, burial habits, and social and socio-political structure including the organisation of urban settlements, resources, food, labour, and trade. There is also an increased incidence of peri-mortem cranial traumatic injuries which are indicative of an increase in inter-personal conflict and arguably an increased amount of organised violent during the period. This is furthered by the building of fortifications and burnt layers at many EBA settlements in Anatolia. Despite the substantial social and socio-political changes during the period, the results show that during the EBA in Anatolia there is a significant degree of homogeneity in dietary habits both at an intra- and inter-site and region level, and across the millennium of the EBA with either C3 or C4 based. Furthermore, the results suggest that we can now begin to discuss an “EBA package” with regards to food resources.

TH5-07 Abstract 16

Diet and identities in a mining community, Sweden - documents and isotopes

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Keywords: dietary patterns, the Reformation, late medieval-early modern, identities, Salberg mining region, Uppsala Cathedral

Presentation Preference - Poster

This paper explores the role of food in late medieval and early modern society from today was a profound influence by religion and ideas about the body. During the 16th century, the Reformation brought forward a new dietary regime that was probably neither easy nor fast, and it took some time for people to adjust to this new regime. In this paper, isotopes (stable nitrogen and carbon isotopes in collagen) and document sources are presented, and intra- and inter-population comparisons are made, to investigate the dietary shift and the influence of group identities on diet.

TH5-07 Abstract 17

On the Diet of the Ural’s Population of the Great Migration Epoch

Author - Prof. Matsveva, Natalya, Tyumen state university, Tyumen, Russian Federation (Presenting author)

Keywords: chemical analysis results of skeleton composition

Presentation Preference - Poster

This report proceeds the author’s works studying the bone chemical composition of individuals from Sargatka culture ancient graves of the forest-steppe of Western Siberia. Recently we have analyzed data on the population inhabiting in late Early Middle Age epoch, in particular the disintegration period of the Sargatka culture using the uniform methods. The chemical analysis results of skeleton composition (30 individuals) came from Ustyug-1 burial complex and were dated as later ones, although it was from the Trans-Ural region of forest- steppe zone as well. We examined the materials of 19 kurgans of the Tobol basin, Tyumen region, which were dated by IV-V centuries AD. The site was determined as one of the beginning of population formation of Bakalaykaya culture and time of assimilation of Kazhynarevko, Sargatka, Kashino, Karim culture groups and Middle Asia genealogus group. The fact of the assimilation was based on the archaeological and anthropological sources. There are novel results of the analyses of the skeletons, which have been selected according to the published data of culture of Sargatka, this lack of consistency was defined by nomadic food tradition of the people buried in Ustyug-1 cemetery. There was a suggested idea that there was a relatively good health of populations from the point of view of mineral balance, based on comparison with modern medical data. We can suppose, that some individuals used stagnant water and were copper décor (jewelry, clothing elements, have used copper cookware) for a wide range of elements, the information on the migration of nomads from the steppe zone, which was extracted from archaeological sources, was confirmed by chemical data.

TH5-07 Abstract 15

Multi-isotopic Investigations of Diet in Anatolian Early Bronze Age Populations

Author - Irvine, Benjamin, Freie Universität Berlin, Newcastle upon Tyne, United Kingdom (Presenting author)

Keywords: palaeodiet, Stable isotopes, Turkey

Presentation Preference - Poster

This chapter focuses on the diets of several Early Bronze Age (3000-2000 BC) populations in Anatolia. The investigated sites are from different environmental regions and consist of late in Anatolia, Samos region, on the Black Sea coast), Tilas Höyük (south east Anatolia, Urfa region), Bademagac (south Anatolia, Antalya region), and Balıka Tepe (west south Anatolia, Isparta region). This research is incredibly significant as it is the first time that quantitative scientific methods have been used to address questions and hypotheses about dietary habits in the EBA period of Anatolia. It is the first time that stable isotope analyses have been used to study dietary habits in this first millennium BCE and is the first project of its kind both in terms of methodology and scale. Analysis of carbon and nitrogen stable isotopes (δ13C and δ15N) was employed on bone collagen from ca. 200 human and faunal osteological samples taken from the Anthropology Lab of Hacettepe University, Ankara Turkey, and was conducted at the Max Planck Institute for Evolutionary Anthropology in Leipzig, Germany. The research is a bioarchaeological one and therefore it utilises stable isotope analyses in conjunction with osteological and archaeological evidence and research to place the dietary habits of these populations within a wider framework. For example, during the EBA in Anatolia, and especially between the early and late EBA, dramatic changes are seen in architecture, burial habits, and social and socio-political structure including the organisation of urban settlements, resources, food, labour, and trade. There is also an increased incidence of peri-mortem cranial traumatic injuries which are indicative of an increase in inter-personal conflict and arguably an increased amount of organised violent during the period. This is furthered by the building of fortifications and burnt layers at many EBA settlements in Anatolia. Despite the substantial social and socio-political changes during the period, the results show that during the EBA in Anatolia there is a significant degree of homogeneity in dietary habits both at an intra- and inter-site and region level, and across the millennium of the EBA with either C3 or C4 based. Furthermore, the results suggest that we can now begin to discuss an “EBA package” with regards to food resources.
GEOARCHAEOLOGY OF PREHISTORIC SETTLEMENTS: NEW INSIGHTS INTO USE OF SPACE, DWELLINGS, HOUSEHOLD ACTIVITIES AND LAND USE

Friday, 2 September 2016, 09:00-16:00
Faculty of Philology, Room 92

Author - Wattez, Julia, INRAP, Paris, France (Presenting author)
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Keywords: geoarchaeology, prehistory, settlement

Presentation Preference - Workshop

Many archaeological studies of prehistoric domestic contexts (i.e., Mesolithic, Neolithic and Early to Middle Bronze Age) focus still on understanding the function of the site and its spatial organisation. Yet, the task of determining and understanding occupation surfaces and site stratigraphy in prehistoric contexts is very challenging. For instance, Neolithic sites demonstrate large variability in their stratigraphy. Occupation surfaces are often weakly expressed, mainly characterized by the concentration and presence of artefacts, or not preserved at all, due to natural erosion or recent ploughing. In some cases, only negative features such as postholes, pits and ditches can be detected - for example among LBK Longhouses or West European enclosures. The infilling of pits and ditches is generally related to dumping or to natural post-depositional processes while the function of the pits usually stays unknown (i.e. sunken-floored dwellings, allot, deep pits or schlitzgruben). Multi-layered sites, characterised by massive accumulation of earthen building materials (i.e. mudbricks), such as those from the Balkan and Near Eastern region tales a set of additional complications for understanding the stratigraphical record.

The geoarchaeological research sheds light on these questions. By applying different approaches (i.e., geomorphology, stratigraphic analysis, micromorphology and geochemistry) geoarchaeologists are able to identify cultural and/or natural formation processes and to evaluate the state of preservation of the archaeological record - site taphonomy.

The purpose of this study is to present the recent development in the geoarchaeological research, in which an interdisciplinary approach researchers were able to improve our understanding regarding prehistoric use of space at both domestic and environmental contexts, from rural to proto-urban settlements. Interdisciplinary papers and posters are encouraged, as well as ethnographic/archaeological and experimental studies.
TH5 Science and multidisciplinarity in archaeology

TH5-10 Abstract 06

Geocarchaeological investigation of waste disposal practices at the Latâne settlement Basel-Gasfabrik

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Keywords: Geocarchaeology, Iron Age, waste disposal practices
Presentation Preference - Oral

The late Iron Age settlement Basel-Gasfabrik is located in northern-western Switzerland on the left bank of the Rhine River. Since 2011, numerous excavations revealed an unfilled settlement with domestic and economic structures covering an area of about 1500 m². They also discovered associated cemeteries in short distance. Basel-Gasfabrik is the largest, unfilled, proto-urban settlements playing a major role at the La Tène period and usually connected with trade and craft production, both of which also apply to Basel-Gasfabrik.

To date, more than 600’000 artefacts and 900’000 animal bones have been recovered, mostly from infilled storage or cellar pits. Numbering more than 500, these represent the most frequent archaeological structures in the settlement. Recent interdisciplinary investigations showed that the majority of the archaeological findings are associated with dark sediments which contain plenty of inorganic and organic components such as ashes, clays and burned stone fragments as well as charred plant remains and coprolite fragments. These dark, calcareous sediments may be 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 micromorphological and geochemical analysis of well-preserved settlement structures like trampled loam surfaces, stone packings, shallow depressions, probable house floors, ditches and pits in order to characterize different activities and their corresponding sediments. Initial results show that there are significant differences in sediment compositions, associated anthropogenic components and taphonomic proxies between features. Bone fragments, for example, show clear variations in preservation apparently correlated with specific archaeological features or postdepositional processes respectively. The geoarchaeological data will be supplemented by bioarchaeological and archaeological findings to get a comprehensive idea of syn- and post depositional processes at Basel-Gasfabrik.

This will permit the reconstruction of waste disposal practices, activity areas and resource management, which is essential for interpreting assemblages like the inventory of an infilled pit. Without knowledge of how (prehistoric) communities handled their resources and their waste, of what happened with used or discarded materials, with accidentally or intentionally broken objects, with fuel and organic waste, with dung and human faeces, interpretations of archaeological features must remain mostly guesswork.

TH5-10 Abstract 07

Firing Divices in Tarascan Land, Zipiáoj, Michoacán, Mexico: To a Mexican Geoethnoarchaeology

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Keywords: firing devices, Mexico, micromorphology, geoethnoarchaeology
Presentation Preference - Oral

Firing devices study is largely developed in Prehistoric archaeology. It is obvious that they have an important place and significance, since they often are in the center of the living space. Archaeological excavations on the Malpais Prieto (2010-2014), directed by Gregory Pereira in the context of the Uacusecha Project, uncovered hearths’ remains in ritual and domestic contexts. Some of them were treated with a micromorphological approach that revealed various sedimentary facies. It show a huge diversity of hearth’s histories despite morphologies apparently simple and little diversified. These hearth’s micromorphography detail the presence of different layers 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 features (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.
or by the room seen in medieval buildings serving as multi-purpose workshops. The surrounding landscape and the social context of the “workshop” might also influence its organisation.

New methods of systematic sampling of workshop floors and working areas found at archaeological excavations, together with analysis of process waste, provide a picture of the physical organization of work within “workshop”. I this way the different processes going on in a workshop can be defined in detail, as well as the physical place where they take place. Even movements of the craftsmen between the different parts of the workshop might in some cases be visible as well; therefore charcoal, and the dragging of the smaller fractions of debris such as hammerscale, from the areas in which they originally have been deposited. A number of examples range from the organisation of one roasting and iron smelting in the iron Age to medieval smiths are presented.


TH5-10 Abstract 09

**Function, environment and dating of Mesolithic sites in Champagne: malacological answers**

**Author** - Grani, Salome, GeochFkH, Vixelle-sous-les-cotes, France (Presenting author)

**Keywords:** malacology, Mesolithic, paleoenvironment

**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 Roully-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 Rcy Le Parc de Reléance (Meuse), where malacological assemblages of about forty structures have been analysed. The presence of abundant malacological remains within the most structures demonstrate 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 distribution of malacological species between the two sites has enabled to reconstruct the environment and its evolution through time, and 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 in the malacological reference data from the first part of the Holocene in the Paris-Basin and its margins. In light of these reference series, some radiocarbon dating from Roully-Saint-Loup and Rcy 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 palaeoarchaeology of the region. The position, on a slope formed by colluvium deposits and near to the fluvial terraces of the stream Athiaki, offers good conditions for a geomorphological study. The extra-site study on Klimonas is conducted on two scales: the first concerns the slope of the site and the second the Athiaki valley. The study of a section directly related to the site provides information on the palaeoarchaeology of the site when it was settled and the colluvium dynamics. The Athiaki valley is formed by three alluvial fill terraces cumulating 15 meters of height. The alluvial terraces record environmental changes and their study shed light on the climatic conditions and on the river dynamic during their formation.

The radiocarbon dates of palaeosols of the two sections under study show that they have been accumulated between the Last Glacial Maximum (LGM) and the arrival of the Holocene, providing a unique palaeoenvironmental 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, Areno (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. The site is in fact known as the largest karst cave and the most important coastal cave of Liguria, with a submerged and an emerged part, both shaped by marine processes that occurred during different sea-level changes. After these earliest researches, and during many decades, the cave has then been examined both by geologists and by anthropologists, with different aims, often not converging. While on the one hand the possibility to examine geological sea-level markers has allowed scientists to achieve information about the geological sequences of this trail 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 groove dated to MS 5.5 of the whole Tyrrenian coast.

In the light of these new data, and thanks to the possibility to examine the submerged section by diving directly on site, the work has then conducted, in 2014, a non-invasive archaeological survey of the whole site, including both the emerged and the submerged section. The possibility to compare the data achieved during these surveys to those obtained by geomorphologists has then permitted to propose a sequence of human occupation of this cave during prehistory. The studies conducted by these latter, in fact, even if unfortunately limited to the emerged section, have given us the first absolute dating of the geological layers of the cave. More in detail, the chance to observe the effect of the sea on the general topography of the cave, as well as on the stratigraphy of the different tunnels that form the emerged and the submerged section, has permitted to propose a possible diachronic development of the site, allowing us to reconize 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 related to archaeological materials found during this and during earlier campaign, studied by the writer on permission of the Archaeological Museum of Florence.

TH5-10 Abstract 12

**Subalpine soil memory and legacy (French Alps)**

**Author** - Dr. Giguet-Covez, Charline, University of York, York, United Kingdom (Presenting author)

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**Keywords:** human activities, legacy, subalpine ecosystems

**Presentation Preference - Oral**

In the Alps, humans used the subalpine area since the Mesolithic: first used for hunting and gathering, then pastoralism suggested since the Neolithic (Giguet-Covez et al., 2014; Ponel et al., 2011; Schieder et al., et al., 2015). This activity intensified during the Bronze Age (Ponel et al., 2011; Roepke and Krause, 2013; Walsh et al., 2014). Subsequent fluctuations in pastoral pressure are specific to each site. Mining also developed at high altitude, especially during the Medieval Period (Gaëton et al., 2012; Py et al., 2014). All these activities impacted mountain ecosystems. Some palaeoenvironmental studies also revealed long-term impacts, especially on plant cover evolution (Bras et al., 2012; Giguet-Covez et al., 2011; Panu et al., 2015). However, surprisingly few studies have assessed the legacy of these activities on archaeological sites. Here, we propose to apply geochemical analyses (XRF, O3C, d15N, biological survey and environmental DNA (eDNA) analyses) (CFCR) on mountain archaeological soils, to track the “soil memory” and the “ecosystem memory” (i.e. the legacy).

A series of on- and off-site samples were taken from different structures (enclosures and complex of huts/cabins) dated to the Bronze Age, Medieval and Modern periods, across the Faravel plateau (2107-2380 m asl, French Alps) (Walsh and Mocci, 2011). Samples were also taken at higher altitudes where the pastoral pressure is very low today. Some activities impacted mountain ecosystems. Some palaeoenvironmental studies also revealed long-term impacts, especially on plant cover evolution (Bras et al., 2012; Giguet-Covez et al., 2011; Panu et al., 2015). However, surprisingly few studies have assessed the legacy of these activities on archaeological sites. Here, we propose to apply geochemical analyses (XRF, O3C, d15N, biological survey and environmental DNA (eDNA) analyses) (CFCR) on mountain archaeological soils, to track the “soil memory” and the “ecosystem memory” (i.e. the legacy).
TH5-10 Abstract 13

Gone with the wind: huts or tree wind-throws at Late Prehistoric open-air settlements of NW Iberia

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At Late Prehistoric open-air settlements of NW Iberia, some of the Chalcolithic and Bronze Age open-air settlements studied, together with pits, post holes, hut floors and anthropic hedges, excavations have been recorded oval or circular hollows measuring 1.9 to 3.5 metres wide and 1 metre of depth, usually with an irregular section. These have been considered huts remains built on perishable materials. These structures were commonly filled with two different deposits, an organic and dark brownish layer, and another light and inorganic. From the organic deposits there has been recovered a high concentration of fungal sclerotia that have a symbiotic relationship with roots of trees or bushes. Finally, we would like to highlight that inside these openings are uncommon archaeological evidences such as sherds or lithic artefacts.

The morphology of the huts and the lack of archaeological evidences related to these structures, together with the repeated absence of huts inside them or in their immediate surroundings, lead us to question their anthropic origin. For that reason, new interpretations must be proposed. In fact, in terms of sedimentological events, there is a great similarity between these structures and natural features, such as wind-throw hollows (Dziegielewski 2007; Goldberg and Macphail 2006; Langohr 1993). The archaeobotanical assemblages recovered from these contexts, also can provide valuable information to interpret them as wind-throws. However, it is crucial to understand the natural processes involved in their formation (Schiffer 1987).

There have been developed sedimentological and archaeological studies of samples recovered from huts to tree wind-throws. Their results have been compared to the supposed anthropogenic contexts. The distinction between natural and anthropic features in these open-air settlements is crucial to avoid any interpretative disturbances of these contexts.

References:

TH5-10 Abstract 14

At the Foot of the Cliff - exploring early human occupation of the inlands of southern Italy

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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 steep limestone rocks. We present recently obtained results from the Rural Landscape in Prehistoric Italy project, which aims to develop improved approaches for the detection and study of ephemeral pre- and protohistoric remains in Mediterranean environments. The earliest settlement remains recorded in the basin of the Raganello 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 results present as very dark, fine-grained deposits containing fragments of pottery, bones and charcoal interspersed with small pits, which are difficult to detect in archaeological surface surveys due to the remoteness, extreme relief, ongoing deposition processes, and adverse vegetation. However, our multidisciplinary investigations (including soil studies, geophysical prospection and high-resolution archaeological studies) show that such sites contain surprisingly well-preserved remains, with a wealth of environmental data on early subsistence strategies.

The paper focuses on three debris slope sites. Site RB121a was initially exposed by quarrying activities, revealing deposits with pottery, bones, and charcoal, a surface survey of the wider area revealed several more prehistoric artefact scatters and at least two more ‘black earth’ deposits within the debris slope below the Timpa Sant’Angelo limestone cliff, indicating long-term use from the Middle Neolithic to Bronze Age. The second site, RB151a, is located in a similar South-facing debris slope, but is exposed by the incising gully of a seasonal stream; the archaeological stratigraphy in the gully section revealed deposits and materials from the Late Neolithic to Iron Age. At the third site, RB130a, located in the debris slope East of the Timpa di San Lorenzo cliff, discovery was aided by erosion caused by goat and tourist trampling; we excavated a small test pit which yielded a surprisingly deep stratigraphy of 1.80m, 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.
remained undetermined for a big proportion of features due to complete absence of artefacts. Therefore, the essential tasks of geoastronomical investigation was to trace anthropogenic criteria, if there were any. Multivariate statistics were performed for variables including element concentration of 16 metals, LII, pH and MS values. Possible anthropogenic indicators were distinguished. Although the data presented here are site-specific, there appeared to be a remarkable consistency in the suite of variables with those enhanced at sites of known context from different geographic areas and geological environments. Hence, this research demonstrated that, while it is indeed difficult to directly interpret chemical soil data in term of ancient human activity, it is possible to trace archaeology, even if there is no material evidence, and this is of great practical relevance to numerous sites of so far un-established archaeological value.

TH5-10 Abstract 16

Tracing the ditch from Zhabotyn
Early Iron Age settlement (Ukraine) using magnetometry

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Keywords: Early Iron Age, magnetometry, settlement pattern

Presentation Preference - Oral

At the end of IX – beginning of XIII century BC revolutionery changes occur in of Middle Dnieper area (Ukraine), relating to Chernomloskaya culture. All settlements and villages of Chernomloskaya 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 and reference Zhabotin settlement. New settlements also have a large area - from 10-20 to 100 hectares and are arranged in clusters. All of them have no visible fortifications, but they are located on the topographical plots, which provide natural protection, being surrounded, usually, on three sides by deep gulles.

New research carried out on Zhabotin settlement provided new information about its topography features and the defense system. In the central part of the settlement the ditch was revealed and partly excavated. The ditch divides the settlement with total area of 50 ha into two parts. The ditch was recognized from magnetic survey and traced along 180 m. Total depth of the ditch is 4.20 m. The ditch is observed from the depth 0.8-1 m. Its width on this level is not less than 10m, the width on the bottom is 1-1.2 m. The bottom of the ditch consists of sands and gravels corresponding magnetic and optical horizons is recognized reflecting different stages of its functioning and filling. Archaeological excavations proved the infill to be consisted of separate layers, with characteristic magnetic susceptibility, indicating main chronological stages between 8th – beginning of 6th cent. BC. It is demonstrated that the magnetic anomaly over the ditch is formed mainly due to later building horizons. The width of the anomaly corresponds with width of the ditch in the upper part (to the depth 2.30 m).

The ditch was laid on early but not the initial stage of settlement being, it had been preceded by earlier constructions. Archiarchaeological excavations and complexes synchronous to ditch were observed on both sides of it. For this reason, it is of considerable interest of the ditch controversy. We can assume that it was dug for the defense, as evidenced by its characteristic profile (wall are almost vertical in the lower part of the ditch and the bottom is very narrow). But defensive ditches, as a rule, correspond to terrain, shielding from the open side the village, located on a narrow headland or surrounded by gullies. The role of the ditch could be not purely defensive, but religious or "social", separating two areas of the settlement with different purposes.

TH5-10 Abstract 17

Transcending disciplines in integrated studies of the Early Iron Age sites in Slovenia

Author - Dr. Črničar, Matjaž, University of Ljubljana, Ljubljana, Slovenia (Presenting author)
Co-author(s) - Dr. Mulič, Branko, University of Ljubljana, Ljubljana, Slovenia

Keywords: Early Iron Age, Integrated studies, Transcending disciplines

Presentation Preference - Oral

Integrated studies of the Early Iron Age landscapes have in the recent years witnessed a tremendous upswing. Archaeology has thus become a melting pot for diverse disciplines, which in a way also met their borders in complex conditions of prehistoric settlements and their landscapes. Our first research step was always aimed at the understanding the basic geology of the settlement and its surroundings, including iron working areas, the flat cremation cemeteries or barrow cemeteries.

TH5-10 Abstract 18

Resources & disposal in an island landscape: microarchaeology at the Ness of Brodgar, Orkney

Author - Dr. Shihto, Lisa-Marie, Newcastle University, Newcastle, United Kingdom (Presenting author)

Keywords: geoarchaeology, neolithic, orkney

Presentation Preference - Poster

Pilot work at the Ness of Brodgar have shown a range of deposits in middens, including ashes, burnt bone and organic remains. This research is investigating the materials being exploited, through analysis of these ash deposits and how this varied spatially and through time. Using a combination of micromorphography, geochemistry and phtyolith analysis we can detect traces of fuel use that are often missing from the charred macrobotanical record.

TH5-10 Abstract 19

Microbiological and environmental biomineratization in the Neolithic hypogeum Hal Saflieni, Malta

Author - Marsetti, Diego, Ecogeo srl, Bergamo, Italy (Presenting author)

Keywords: hypogeum, Hal Saflieni, Malta, archaeomicrobiology

Presentation Preference - Poster

Work carried out within the tender H2020/2015 committed by Heritage Malta to Ecogeo srl di Bergamo, Italy and Joseph Cachia & Son Limited, Malta.

The phenomenon of the megalithic architecture developed in the Maltese Islands during the Neolithic between 3500 and 2500 BC yielded some of the oldest free-standing megalithic structures anywhere in the world. The Hal Saflieni Hypogeum is an underground rock-cut burial site, with both carved and built elements similar to the architecture found above ground. It is organized on three levels, which were progressively carved starting from the surface level. The oldest level dates from about 4000bc; subsequent chambers were added later and filled with funerary deposits up to the Tarxien Phase (3000-2500 BC).

The Middle and Lower levels were delicately carved by a variety of tools, currently under study, specialized both for excavating the soft bedrock, i.e. the Glopctina limestone, and for the final sculptural profile to be obtained and painted. Indeed, carvings and the uppermost exposed walls, were painted with varying red ochre designs, such as honeymoons and spirals. These are currently threatened by several mechanisms of rock surface alteration and biotransformation. During a two season campaign in 2015-2016, microbiological, paleomicrological and fluorescence studies were carried out in order to improve the understanding of the deterioration mechanisms active within the hypogeum. The study of microbial communities was approached by molecular analysis (Next Generation Sequencing), direct observation in light, fluorescence, electron microscopy and MALDI-TOF (Matrix Assisted Laser Desorption/Ionization Time-of-Flight) mass analysis technique.

The pollen influx to the hypogeum was studied both on traps to measure the airborne fraction, and on the sediment recently collected from the access通道. The study of microbial communities was approached by molecular analysis (Next Generation Sequencing), direct observation in light, fluorescence, electron microscopy and MALDI-TOF (Matrix Assisted Laser Desorption/Ionization Time-of-Flight) mass analysis technique.

The wide range of data, which was created by applying different methods deriving from various disciplines, has ‘forced’ us to not only inter-disciplinary but rather transdisciplinary research. Under such circumstances scientists from various disciplines can not only do their research, but have to combine and intertwine it with others to produce common results, which are not a sum of their individual data, but its multiplied product.

(Further co-authors: Matej Dolenc, Nina Zupančič, Manca Vinazza, Igor Medarič, Matjaž Molič, Petra Basar)
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: dampness 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 pits as a system of activities.

In order to evaluate the cultural sedimentary record and to discriminate micromorphological indicators related to any activities (construction, use), and to post-functional processes, seven pits were sampling. Radiocarbon dating (4261 to 4174 cal BC), place these pits to Early Chassean Culture.

Geoarchaeological results indicate that the circular pits correspond to a constructed space, with activity surfaces regularly maintained and transformed by trampling. Correlation between microstratigraphic and archaeological record allows us to propose a new interpretation on the functions of the pits (domestic/craft activity areas, cellar-storage) which will be presented and discussed in this paper.

TH5-10 Abstract 23
Micromorphology of combustions structures at Birnirk and Thule sites of the Cape Espenberg site

Author - PhD student Vanlandeghem, Marine, UMR 7041 ArScan, Equipe “Archéologies environnementales”, Nanterre, France
Co-author(s) - Wattez, Julia, Centre Archéologique de La Confluence INRAP, La Confluence, France (Presenting author)

Keywords: Alaska archaeology, Combustion Micromorphology, Neolithic

Presentation Preference - Poster

In Northwest Alaska, human societies have adapted their subsistence strategies to extreme conditions. At the coastal Cape Espenberg site, excellent conservation conditions have allowed the preservation of many cultural features (architecture, hearths, middens) within a series of aggrading beach ridges. Remains of semi-ubbernanean houses and associated material culture indicate the sites relate to the Birnirk and the Thule cultures. The houses associated with the Birnirk culture are in ridge E-6 and reveal a multi-room architecture and two to three occupation levels dated to the 11th-13th century. Thule and later Kotzebue period houses are found on ridge E-5 and E-4. They show a long entrance tunnel leading to a rectangular room that contains a sleeping platform elevated above the occupation level. Unusual concentrations of archaeological charcoal and burned organic matter have been uncovered inside and outside of Birnirk houses, revealing the presence of small domestic hearths inside and firepits outside. However, Thule culture houses only have external burned areas and firepits. Ceramic lamps appear to be the sole source of light and heat inside these houses.

The variability in the form, fill, and spatial organization of combustions structures raises questions regarding their usage, status and maintenance by people who occupied these houses. To further understand fire management in the arctic tundra, and the function and status of combustions structures, soil samples were collected from combustions structures (hearths, firepits, charcoal’s concentration and soil occupation, ...) for archeological and micromorphological analysis. This sampling protocol provides the opportunity for a multivariate, comparative and diachronic analysis of combustions structures between one Birnirk house and three Thule houses at Cape Espenberg. Our goal is to identify the diversity of fire-related activities in the excavated Birnirk and Thule houses, whether domestic (cooking, boiling water, heating, lighting, etc.) or specialized (ceramic firing, smoking and / or drying of foods, etc.). In this poster we present results of the soil micromorphology analysis and compare the areas sampled in terms of function and spatial organization in light of prior results of charcoal analyses.
TH5-11

“GNU DIRECTIONS IN R ARCHAEOLOGY”: INNOVATIONS IN THE USE OF FREE AND OPEN SOURCE SOFTWARE (FOSS) TO ACHIEVE AN OPEN ARCHAEOLOGY

Friday, 2 September 2016, 09:00-11:00
Faculty of History, Room 329

Author - Dr. Orton, David, University of York, York, United Kingdom (Presenting author)
Co-author(s) - Eng. Botica, Natalia, Universidade do Minho, Braga, Portugal (Presenting author)
- Madeira, Joaquim, Universidade de Aveiro, Aveiro, Portugal
- Mamede, Joaquim, Universidade de Aveiro, Aveiro, Portugal
Keywords: 3D models, Information System, open-source software
Presentation Preference - Oral

TH5-11 Abstract 01
Digital media as an effective platform to archaeological data dissemination

Author - Dr. Orton, David, University of York, York, United Kingdom (Presenting author)
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- Madeira, Joaquim, Universidade de Aveiro, Aveiro, Portugal
Keywords: 3D models, Information System, open-source software
Presentation Preference - Oral

TH5-11 Abstract 02
ArchSeries: an R package for transparent estimation of chronological frequency distributions

Author - Dr. Orton, David, University of York, York, United Kingdom (Presenting author)
Keywords: chronology, R, uncertainty
Presentation Preference - Oral

TH5-11 Abstract 03
Consumption patterns and morphology of cattle in a Late Neolithic settlement Polgács–Csozshalom

Author - Dr. Csipog, Péter, Eötvös Loránd University of Sciences, Budapest, Hungary (Presenting author)
Keywords: Free software, Statistics, R, Zooarchaeology
Presentation Preference - Oral

This information system also integrates archaeological 3D models that are created either using constructive solid modelling techniques or computer vision techniques such as structure from motion (SFM) or dense stereo reconstruction algorithms. In fact it is possible to use artefacts, as coins, ceramics or architectural elements both for cooperative research and dissemination purposes.

All the 3D information is important not only for rendering and for 3D representation purposes, but also to be processed with visualization filters to enhance the knowledge about the archaeological record. This data is perfectly compatible to be processed with the Visualization Toolkit (VTK) from Kitware Inc., which is an open-source software system for 3D computer graphics and visualization. Some visualization procedures have already been implemented to filter scalar information of the archaeological data for contouring purposes or even to carry out manual segmentation over a 3D model.
Science and multidisciplinarity in archaeology

Perhaps more than any other data type, geospatial information appeals to the archaeologist. The ability to plot a dataset in its geographical and chronological context offers a myriad of possibilities for interpretation, understanding and presentation. For over twenty years the Archaeological Data Service (ADS) has curated and disseminated such datasets, the latter through an increased use of tools for Web-based mapping. However, the practice of such dissemination has not always run smoothly, early work with proprietary software and middleware such as ArcIMS, ArcGIS Server and ArcSDE have proved problematic and on occasion, unsustainable. Thus in more recent years the ADS have moved towards utilising the wide range of Open Source libraries, tools and standards to disseminate this data. Use of innovations such as OpenLayers, GeoServer and WMS has facilitated a new wave of simple and efficient re-use potentials and coincided with a wider trend in a more unrestricted dissemination of archaeological and non-archaeological data alike. Indeed, as such methods of presentation become more easily achievable, if not expected, then so does an increased need to re-examine the potential of working online. This potential is not only limited to WMS publishing and consumption, but also the possibilities for use of linked data and API lookups for historic and modern place names and boundaries to spatially locate other data such as reports and journal articles. The long term effect of such moves may be less about building complex, and arguably unsustainable, Web-based GIS, but towards a more literal Web-mapping to facilitate resource discovery.

Papers

Putting the pieces back together: automated refitting using open source software

Refit analysis is a powerful tool that can be used to address questions regarding taphonomy and assemblage formation processes, and is an important component of assessing site assemblage. However, it is a method constrained by a reliance on human experts and time, and is further limited by factors such as assemblage size, raw material characteristics and technology. The time required to conduct refit analysis increases exponentially with assemblage size, while success rates decrease. Further, error rates in refitting remain untested, although inter-analyst variability in terms of experience and skill is clearly an important factor. A refit study can rarely be considered as complete, which can create uncertainty over the extent to which past human behaviour can be reconstructed through refit analysis. The potential of the full suite of behaviours represented at a site. The ‘Fragmented Heritage’ project is addressing this situation through the development of a new digital method for refitting that draws on techniques from the field of optical metrology and utilises free open source software.

Author - Dr. Davis, Robert, University of Bradford, Bradford, United Kingdom

- Evans, Adrian, University of Bradford, Bradford, United Kingdom (Presenting author)

- Sparrow, Thomas, University of Bradford, Bradford, United Kingdom

- Donahue, Randolph, University of Bradford, Bradford, United Kingdom

- Wilson, Andrew, University of Bradford, Bradford, United Kingdom

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Keywords: Automated refitting, Brixvorg, open source software

Presentation Preference - Oral

Metal Detecting in Brandenburg

Germany is a Federal State. The states are responsible for cultural purpose. So you have 16 different laws concerning the preservation of monuments and ancient heritage. The approaches vary even more. In Brandenburg State the archaeological finds are property of this state and a technical supported searching needs official permission and an agreement with the Brandenburg State Authorities for Heritage Management and State Museum of Archaeology (BLDAM). After controversial discussions the BLDAM established a program to give metal detectors the possibility to participate in the research work of professional archaeology and for the benefit of society.

But there are certain preconditions. The applicants have to take part in an extensive training program. This program was first hand established to instruct volunteer supporters of archaeology, which are an important part of archeology not only in eastern Germany. The training is organised by the Archaeological Society in Berlin and Brandenburg. Professional archaeologists are giving lectures on ancient periods and their typical finds, methods of localisation in the field, how to report to the central archaeological information service, about laws of conservation, on health and safety measures (ammunition). They participate get the chance to work on an exhibition. The program takes about two years with 10 to 12 weekend lessons.

After that the applicants get a regional defined and temporary permission for research. They have to report and deliver the finds to the BLDAM, which is the legal owner of all upcoming archaeological objects. We check the information and we have a critical look on finds and finding reports. Important is, that not only metal objects are reported but thin-, stone- and ceramic objects as well. In certain projects the goals for research are given by the BLDAM. For example to get detailed information on 16th to 19th century battlefields. Or when we try to understand the structure of abandoned medieval sites. More often important finds are made by chance.

This can be bronze hoards, silver coins or burials. Very often these objects are of certain importance and would be lost for archaeology. Without the possibility for metal detectorists of legal participation in scientific research, these objects would disappear.

In our opinion the Brandenburg approach to embody metal detectorists in our daily archaeological work gives us new information, helps us to catalyse enthusiasm and to have less legal problems with detectorists. Overall metal detecting is nowadays an important part of modern archaeological site management.

Author - Prof. Dr. Schopper, Franz, Brandenburg State Authorities for Heritage Management and State Museum of Archae, Zossen, Germany (Presenting author)

Keywords: Metal detector, site management, volunteer training program

Presentation Preference - Oral
Th5-12 Abstract 02
Methodology and perspectives. Use of metal detectors in the Little Poland region
Author - MA Bulas, Jan, Jagiellonian University, Kraków, Poland (Presenting author)
Keywords: Iron Age, Little Poland Upland, metal detector
Presentation Preference - Oral
In Poland, as in most European countries there is an ongoing debate about the risks associated with the use of metal detectors by treasure hunters while illegal surveys. This topic largely overshadowed subject of methodological use of metal detectors during archaeological excavations, and during field-walking surveys. The discussion within the scientific community, which was also held in Poland, mainly in the 90s and in the first decade of the twenty-first century, above all was limited to a debate whether the use of metal detectors in general should be allowed during scientific research or not. The subject of methodological application of this tool was virtually ignored.

The aim of the paper is to present a reflection on the advantages associated with the use of metal detectors during archaeological excavations and field surveys in characteristic hilly terrain of the Little Poland Upland. This reflection will be based on the experience of the last decade of research in the area, primarily on 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. Homjak, Milan, VIA MAGNA s.r.o., Voutí, 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 finds 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 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 04
The hilltop settlement Gradišče above Bašelj: metal detecting survey vs. archaeological research
Author - Karo, Špela, Zavod za varstvo kulturne dediščine Slovenije, Ljubljana, Slovenia (Presenting author)
Co-author(s) - Knific, Timotij, Narodni muzej Slovenije, Ljubljana, Slovenia
Keywords: archaeological research, Gradišče above Bašelj/Slovenia, metal detecting survey
Presentation Preference - Oral
Gradišče, a Late Antique and Early Medieval hilltop settlement, rises above the village of Bašelj, north of Kranj, Slovenia. The first archaeological finds discovered at the top of the sharply peaked hill of Gradišče, were unearthed in 1906, during the construction of a hunting lodge. Thirty years later, landscape maintenance works around the lodge revealed more finds. The finds were sufficiently interesting to prompt archaeological excavations, which were conducted in 1939 under the direction of the National Museum in Ljubljana. In the following decades interest in the site almost died out. However, around 1990, new finds started to emerge, acquired by treasure hunters with metal detectors. In 1992, an archaeological team conducted a topographical survey with a metal detector. The site was revealed to be highly endangered due to the fact that the artefacts were very close to the surface. In the following years, rumours of new illegal detector finds prompted the decision to complement the topographical survey of the site and, in 1998, a team of archaeologists from the National Museum of Slovenia conducted a revision excavation, which confirmed existence of the settlement from the 5th-6th century and uncovered another layer with numerous iron objects and ceramic fragments, from the period between the end of the 8th century and the mid 10th century.

In the recent years, a lidar scanning and a geophysical research of the site and its surroundings were carried out, confirming numerous built structures inside the settlement. One of these, a tower built outside the defence wall was excavated in 2015. The new discoveries of the architectural remains, therefore, offer a great opportunity to compare the settlement’s structure with a distribution of small metal finds, recorded during the previous topographical surveys. Moreover, the presentation also gives a short overview on the national legislation regarding the search for archaeological remains and use of technical means for this purpose.
Changes in past environments, climates, and faunal ecology had huge impacts on human populations. From the extinction of the Neanderthals, to the origins of agriculture, the formation of early societies and technological and cultural change. Understanding the scale and frequencies in these changing environments is crucial in determining the impact of these events on archaeological populations, on regional and site-specific, as well as global levels.

In recent years new developments in the field of environmental archaeology including the advancement of biomolecular techniques, have enabled palaeoenvironmental changes to be characterised on a range of scales, from analysis of individual animals, and archaeological sites, to regional reconstructions. Using holistic and multi-evidential approaches it is possible to achieve a more comprehensive understanding of palaeoenvironmental and palaeoclimatic changes within archaeological sites and environments.

This session seeks to explore new micro- and macro- scale approaches towards reconstructing palaeoenvironments, palaeoclimates, and faunal palaeoecologies to answer key questions related to the impact of palaeoenvironmental and palaeoclimatic changes on past human and animal populations.

**NOVEL APPROACHES TO UNDERSTANDING PALEOENVIRONMENTAL AND PALEOCLIMATIC CHANGE, AND THEIR IMPACT ON PAST HUMAN AND ANIMAL BEHAVIOUR**

**TH5-13 Abstract 01**

**Environmental conditions and Mesolithic-Early Neolithic sites in the basin of Voze Lake (Russia)**

**Author** - Dr. Kosorukova, Natalia, Cherepovets State University, Cherepovets, Vologda region, Russian Federation

**Co-author(s)** - Kukhova, Marianna, Herzen State University, St.Petersburg, Russian Federation (Presenting author)

**Keywords:** geoarchaeology, environmental reconstruction, palaeoecological reconstruction, palaeoenvironment

**Presentation Preference:** Oral

The pit-bog sites are located in the basin of Vozhe Lake in the Vologda region of Russia. The Pogostilne site is dated to the middle Mesolithic period, but the Karakavkha 4 site belongs to the Early Neolithic period. The environmental conditions were found under layers of peat and gyttja, and the alluvial sand and clay deposits. The numerous finds from bones, flint, shale, wood, ceramics, metal bones and remains of wood fishing constructions were excavated. The application of geochemical, pollen and radiocarbon methods gave the possibility to reconstruct the palaeo-environment and to clarify the chronology of sites. The investigations of cultural layer successions on these sites allow us to trace not only changes in the material culture of the ancient people, but also the environmental development during the period from the beginning of the eight (Boreal period) to the middle of the sixth millennium BC (Atlantic Period), and the way ancient people interacted the natural environment. The human groups occupied this area around ca.7800 cal BC. In the end of Boreal in beginning of Atlantic period the interruption of sedimentation occurred. The next stage of sedimentation was in the period of water level increasing. The climate became warmer. The large-leaved trees were spread. The early Neolithic people occupied the Karakavkha 4 site around ca.6300 cal BC. Probably, the favorable environment was the main factor that attracted the ancient people at this place of the lake. The wood fishing constructions belongs to this period. The birth prevalence on this place could be an indicator of anthropogenic factor in this context. The next stage of anthropogenic activity was in the middle of Atlantic period. The wood artifacts were dated 5043-4885 cal BC. The amount of artifacts in this cultural layer is not too much as in the layer of beginning of Atlantic period. It could be explained by the decreasing of water level, lake eutrophication and the decreasing of lake productivity. The differences in landscape conditions in Boreal and Atlantic periods in the Vozhe Lake basin have influenced on the changes of economic strategy of ancient people. The investigations were support by RFBR project 14-06-98806.

**TH5-13 Abstract 02**

**Baltic Sea Lithuanian coastline changes in Mesolithic: landscape and peoples subsistence economy**

**Author** - Prof. Žulkus, Vladas, Klaipeda University, Klaipeda, Lithuania

**Co-author(s)** - Prof. Girininkas, Algirdas, Klaipeda University, Klaipeda, Lithuania (Presenting author)

**Keywords:** Mesolithic inhabitants, Palaeoenvironmental situation, the submerged prehistory

**Presentation Preference:** Oral

The submerged prehistory of the eastern Baltic has attracted great archaeological, geological, pollen, macrofossil, diatom, radiocarbon analysis the last years. The exploration was concentrated in order to localize the former Yoldia Sea and Ancylus Lake coasts, their seashore underwater landscape reconstruction (coastal vegetation, relics of composition, their age, pollen, diatom analysis) and their potential settlement development in Lithuania waters. Studies in 2014-2015 revealed northern part of the Curonian plateau (underwater peninsula) sea bottom formation and cost lines in the 15-30 m depths. Yoldia Sea and Ancylus Lake shores underwater landscape studies were compared with the data from the Samogitian Highland (West Lithuania) ongoing pollen, diatom and archaeological investigations, which showed that in the Mesolithic period of human living and farming conditions were different. Palaeoenvironmental situation plays a leading role in the reconstruction of the human settling during the Early Holocene in coastal and continental area of Lithuania. Relict submerged forest vegetation composition remains confirms that the natural conditions at the first case of Baltic coastal water basin were favorable to live and succeed in farming for Early Mesolithic Kunda (Pulli) and Maglemose cultural communities. The tested area was favorable place for human settlement which included coastal fauna, coastal migratory birds and marine resource, seals especially in the Late Pre-Boreal and Early Boreal. Yoldia Sea and Ancylus Lake shore zone examined small lake surroundings could have been settled by Mesolithic inhabitants. In the first case – early Mesolithic Kunda culture (Pulli stage), and second – Maglemose settlers.
The influence of past climate change on hunter-fisher-gatherer societies is a highly debated topic during recent years. The increasing interest in human-environment interactions has resulted in development of more accurate methods and techniques for palaeoecological data interpretation. Thus, molluscs recovered from archaeological shell middens sites can provide information on past climatic and environmental conditions, as well as human subsistence practices. Seawater temperatures (ST) can be reconstructed using geochemical techniques such as the analysis of stable oxygen isotope ratios on marine mollusc shells. In this paper we aim to reconstruct the evolution of ST in northern Iberia (Spain) from ~50 to 7 ka cal BP using oxygen isotope ratios obtained from the limpet Patella vulgata (Linnaeus, 1758). Modern and archaeological specimens from seven sites were analysed, producing a long-term record of environmental changes. Results suggest that important changes in ST took place during the time period investigated, with significantly higher seawater temperatures during the Holocene compared to the Late Pleistocene. Rainfall also shows a correlation between P-vigilata 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 Devenian glacial through to the Holocene interglacial (c. 15 000 cal BP – 11 500 cal BP) saw a series of rapid oscillations in global climate associated with major turnover events in floral and faunal compositions. Climate is known to be a primary driver of biological evolution and such abrupt climatic fluctuations are likely to have exerted strong selection pressures on species. The time period 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.

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.

We conducted statistical analyses on a database that consists of radiocarbon dates from over 400 archaeological sites and associated faunal remains from across Europe limited to the East by the Urals and Caucasus and a temporal scope of 60-10 ka BP. The faunal part of the database comprises of mammals that are of medium to large size. The multivariate analyses are run on different aspects of the fauna: the herbivores, omnivore and the carnivore guilds are tested separately, and together. The temporal component analysis also reconsiders the paleoenvironmental and palaeoclimatic changes, is taken into account by running the analyses over meaningful time-intervals. Principal Component Analysis (PCA) is used to study the differences in resource exploitation between Neanderthals and AMH. Improvements in radiocarbon dating allow us to track changes in diet through time and space for both Neanderthals and AMH. We used Cluster Analysis (CA) in a GIS setting, showing that sites cluster according to similar species composition through time and space.

The PCA confirms that Neanderthals are indeed more closely associated with species living in forested environments and AMH are more closely associated with species living in open environments. The geographical application of CA shows that there are geographical changes through time and space in species composition of archaeological sites, and this suggests that both Neanderthals and AMH have changed their diets through time and space. These analyses increase our understanding of the hominins adapting to changing climates and the results may be used in modelling the demise of Neanderthal populations.

The oxygen isotope composition of precipitation is largely a function of local temperature, and therefore varies geographically and seasonally at the same location. In light of this, and the correlation between the oxygen isotope composition of animal tissues and water consumed, the oxygen isotope analysis of archaeological skeletal material has the potential to investigate past geographical origins and climatic conditions. In archaeology, the oxygen isotope analysis human tooth enamel (often paired as a refugium for plants, animals and humans. Changes in the environment are thought to have been driving factors behind the extinction of the Neanderthals, the rise of Anatomically Modern Humans (AMHs), and later the development of the rich cave art assemblies. Carbon and nitrogen stable isotope analysis of hunted animal bone collagen from Palaeolithic levels of archaeological sites can be used to understand past environments at this time. Changes in the environment including factors such as temperature, aridity produce different isotopic signatures within plants, and the animals that consume them, and, analysis of these specimens on a large scale. This research uses large scale isotopic analysis of animal bone, before making comparisons to existing zooarchaeological assemblages, to characterise how the environment changed, and human responses to these environmental changes throughout the Middle and Upper Palaeolithic in this archaeologically important region, at this crucial time in human evolution.

The Cantabrian region Northern Spain was an archaeologically important region throughout the Middle and Upper Palaeolithic, and was home to some of the last surviving Neanderthals in Europe, and during the Last Glacial Maximum the region acted as a refugium for plants, animals and humans. Changes in the environment are thought to have been driving factors behind the extinction of the Neanderthals, the rise of Anatomically Modern Humans (AMHs), and later the development of the rich cave art assemblies. Carbon and nitrogen stable isotope analysis of hunted animal bone collagen from Palaeolithic levels of archaeological sites can be used to understand past environments at this time. Changes in the environment including factors such as temperature, aridity produce different isotopic signatures within plants, and the animals that consume them, and, analysis of these specimens on a large scale. This research uses large scale isotopic analysis of animal bone, before making comparisons to existing zooarchaeological assemblages, to characterise how the environment changed, and human responses to these environmental changes throughout the Middle and Upper Palaeolithic in this archaeologically important region, at this crucial time in human evolution.

Thesis-13 Abstract 07

Changing mammal communities influence Neanderthal and Anatomically Modern Human food resources

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.

We conducted statistical analyses on a database that consists of radiocarbon dates from over 400 archaeological sites and associated faunal remains from across Europe limited to the East by the Urals and Caucasus and a temporal scope of 60-10 ka BP. The faunal part of the database comprises of mammals that are of medium to large size. The multivariate analyses are run on different aspects of the fauna: the herbivores, omnivore and the carnivore guilds are tested separately, and together. The temporal component analysis also reconsiders the paleoenvironmental and palaeoclimatic changes, is taken into account by running the analyses over meaningful time-intervals. Principal Component Analysis (PCA) is used to study the differences in resource exploitation between Neanderthals and AMH. Improvements in radiocarbon dating allow us to track changes in diet through time and space for both Neanderthals and AMH. We used Cluster Analysis (CA) in a GIS setting, showing that sites cluster according to similar species composition through time and space.

The PCA confirms that Neanderthals are indeed more closely associated with species living in forested environments and AMH are more closely associated with species living in open environments. The geographical application of CA shows that there are geographical changes through time and space in species composition of archaeological sites, and this suggests that both Neanderthals and AMH have changed their diets through time and space. These analyses increase our understanding of the hominins adapting to changing climates and the results may be used in modelling the demise of Neanderthal populations.

Exploring the potential of oxygen isotopes in human skeletal remains: a multi-tissue approach

The oxygen isotope composition of precipitation is largely a function of local temperature, and therefore varies geographically and seasonally at the same location. In light of this, and the correlation between the oxygen isotope composition of animal tissues and water consumed, the oxygen isotope analysis of archaeological skeletal material has the potential to investigate past geographical origins and climatic conditions. In archaeology, the oxygen isotope analysis human tooth enamel (often paired as a refugium for plants, animals and humans. Changes in the environment are thought to have been driving factors behind the extinction of the Neanderthals, the rise of Anatomically Modern Humans (AMHs), and later the development of the rich cave art assemblies. Carbon and nitrogen stable isotope analysis of hunted animal bone collagen from Palaeolithic levels of archaeological sites can be used to understand past environments at this time. Changes in the environment including factors such as temperature, aridity produce different isotopic signatures within plants, and the animals that consume them, and, analysis of these specimens on a large scale. This research uses large scale isotopic analysis of animal bone, before making comparisons to existing zooarchaeological assemblages, to characterise how the environment changed, and human responses to these environmental changes throughout the Middle and Upper Palaeolithic in this archaeologically important region, at this crucial time in human evolution.
Stable Isotope Markers of Herd Management in Prehistoric Croatia

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Stable carbon, nitrogen, and sulphur isotope values as proxies of diet and local environment to highlight differences in herding and management practices between domesticated species in prehistoric Croatia. Bone samples from known domesticated (sheep, goat, cow, and pig) and wild species (deer and wild boar) are taken from sites in two distinct Croatian landscapes: central Dalmatia and Lika. Sampled Dalmatian sites are all Neolithic coastal open-air villages with evidence of a heavy reliance on domesticated species and possible seasonal transhumance routes between valleys and the nearby Dinaric Alps. Iron Age settlements in Lika, in contrast, are located on rugged karstic terrain and ringed by mountains that made movement of livestock to the sea unlikely. We expect stable isotope values to reflect differences in management strategies (e.g., transhumance vs. local grazing), and explore the use of sulphur as a tool for both more fine-grained dietary analyses and an environmental indicator. Analysis of faunal stable isotope values from these geographically distinct sites constitute the first step in addressing questions of animal management, Croatia, stable isotopes

Presentation Preference - Oral

Climate and environment are critical factors for the survival of every living species. Animals and plants are not only conditioned by an environment that offers shelter and food, but also by the interplay of species that share the same physical and biological space. This relationship is reflected in the composition of their tissues, where various isotope ratios indicate nutrient sources and their turnover rates.

The domestic chicken presents an interesting case study. Introduced into Europe during the Iron Age as a non-native species, its novel presence necessarily altered its ecosystem, both in terms of inter-species relationships and on account of its ecological niche. Application of ecological community models to archaeological faunal data forms the basis of a macro-scale approach to explore the complex network of interactions that determined past ecosystems. Europe-wide comparison of faunal and floral evidence at site level from the period prior to the introduction of the chicken up until the end of the Roman Empire enables us to better understand how changes in culture and attitudes over time have been influenced by, and shaped, the environment within which these communities existed.

Anthropogenic impact on the changes in landscape in the tract "Adzhel" in the Eastern Crimea

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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 of one or more dominant objects of human impact on the environment. In our case, that is the territory of the tract Adzhel. The tract occupies part of the territory of the Eastern Crimea adjacent to the Sea of Azov, is located 45 kilometers west of the eastern point of Crimea, and covers an area of about 40 km². The name of this area connected with Adzhel quich, located here. As a result of studies of the XX century, there are discovered many barrows and more than a dozen ancient archaeological sites of other types. For detection the relationship the provisions of the identified objects of natural-geographical and landscape features of the tract, GIS has been prepared, including layers, describing the soil properties, topography and hydrology of the area. On a large part of Tracts Adzhel, with modern agriculture field, there are no traces of settlement structures, that says, that in ancient times these territories were not built up, but could be used also for agriculture. Settlement structures are located primarily along the boundaries of the modern field, and in areas with less fertile soils. The territories occupied by modern fields as underlying adzhel sites include the middle and lower Piocene rocks - sand, clay, iron ore, shelly limestone; rocks of Motsaier of Upper Miocene - shelly limestone, Ectopena reefs, clay. Quaternary rocks represented by aeolian-talus deposits, with material composition - less-like loam and loess. Soils, occupying a significant part of Tracts - southern micaceous carbonate bed, are one of the most fertile soil types on the Kerch Peninsula. There is a spatial matching soil types and underlying pre-Quaternary rocks, which in turn is likely to determine the features of talus formations of the Quaternary period, directly acting as a soil-forming grounds.

By all these, conclusions about the possible nature of the change in the landscape of the period 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 Adzhel determined by soil-forming rocks, and are not associated with anthropogenic or other influences, and it can be assumed that in ancient times they were the same, i.e., highly suitable for agriculture.
The work was performed as part of research “Structural and spatial study of monuments as a paradigm of the archaeological research of history of a particular region (for example, the tract)”, which is a part of the project financed by the Romanian National Science Foundation, under the code PN 1995.

THS 13 Abstract 13

Geomorphology and early Neolithic migration routes into the Transylvanian Depression

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Keywords: Carpathians, Early Neolithic, migration routes
Presentation Preference - Poster

In this paper we discuss the geomorphological conditioning of the migration routes of the early Neolithic communities into the Transylvanian Depression (Carpathian Mts., East Central Europe), as reflected by the spatial and temporal distribution of the Starčevo – Criş archaeological sites in the western part of Romania. The inventoried archaeological sites are located along rivers, preferentially positioned in the floodplain and low fluvial terraces, between 70 – 450 m asl, with few sites at higher elevations along rivers in the mountainous areas. The main access route across the Carpathian Mts was eastward from the Pannonian Basin, along the Mureş River. During Starčevo – Criş III, the communities were present only in the western part of the Transylvanian Depression, at the edge of the Apuseni Mountains. They have split along the main rivers and some small tributaries, and moved to the north, along Somogedium 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, Arieş), associated with a slow eastward movement. A secondary eastward route was along the low alluvial plains (known as The Western Romanian Plain) of Mureş, Criş and Someş Rivers. Here too, the peoples moved from the area of Mureş alluvial plain to the NE. They arrived in the perimeter of the Someş alluvial plain only during Starčevo – Criş III and IV. From there, further to the east, neolithic sites are generally absent along the main (1-5 km wide) floodplains but present in the hilly area (crossed but smaller and narrower valleys), suggesting a possible geomorphologic control on the spreading routes. The third route was along Olt River and seems to have occurred only during Starčevo – Criş III and IV. These communities moved to the east, along the main river and occupied Bânav 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 Someul Mare – Someul 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 routes in the western alluvial plains, being known the complex fluvial relief in the area, abandoned palaeo-landforms, extended wet zones, isolated fluvial relics, low fluvial terraces? The authors acknowledge financial support from projects PN-II-RU-PO-2012-3-0547, PN-II-NU-TE-2014-4-1993, PN-III-D-PCE-2011-3-0557, financed by UEFISCID Romania.

THS 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 concomitant with growth banding. Carbonate aliquots were subsequently analysed for δ18O(CaCO3) values to obtain snapshots of ambient seawater temperatures at a sub-monthly resolution. Our data suggest that the Early Holocene (10,650 to 7,600 cal yr BP) exhibited the most persistently warm summers, with maximum summer temperatures ~2°C higher, and with greater seasonality than during the subsequent cooler Neoglacial Period (7,000 to 4,750 cal yr BP). The Neoglacial Period was a relatively stable cold period, with the lowest summer maximum temperatures, as well as the lowest seasonality during the Holocene. Sporadic warm periods and increased seasonality are observed in the record after 4,500 cal yr BP, when maximum summer temperatures reached between ~7 and 9.5°C. The highest reconstructed temperatures of the entire record occurred during the Roman Warm Period at ~2,200 cal yr BP.

Three centuries of subannual/annual climate data were retrieved from the δ18O and δ13C values of tree-ring cellulose in the temperature-sensitive region of central-coastal Labrador, Canada. A large cookie of a white spruce (Picea glauca) tree was micromilled to retrieve multiple samples per year and/or early and late wood that were subsequently analyzed for δ18O cellulose and δ13C cellulose values. The coastal Labrador region is a climatically dynamic region that is influenced by ocean-atmosphere interactions and thus has excellent potential for studying both, terrestrial and marine climate variability. We found a good agreement between reconstructed mean-annual temperatures and major climatic trends and events, including mid Holocene warm and cold climate episodes, historical meteorological measurements collected by the Moravian missionaries, modern mean-annual temperatures and salinity anomalies in the NW North Atlantic Ocean, as well as cooling trends induced by major volcanic eruptions such as Lakiaggar in 1783-84, Tambora-in 1815, and Krakatoa in 1883. Persistent cold intervals are found from 1790 to 1810, 1875 to 1895, and 1950 to 1970, while the warmest intervals are found during the mid-18th and 19th centuries.

Moreover, continuous transform wavelet analysis was used to analyze δ18O cellulose and δ13C cellulose periodicities and suggest that their interannual and multidecadal periodicities are similar to those of the NAO.
We bring together archaeologists and palaeoecologists working on land use and land cover history over the Holocene, for any area or region of the world. Land use is inferred from settlement patterns, artifact scatter, plant and animal remains and off-site palaeoecological records. We especially wish to consider the range and intensity of subsistence activities at a regional and spatio-temporal scale. Land cover may be inferred from complementary palaeoecological data. A long-term focus, examining changes ~8000 cal BC to ~cal AD 1500 (100 BP – 500 BP), will allow progression towards a global overview of how subsistence and land cover has changed as a consequence of hunter-gatherer and agricultural activities across different regions of the world.

We would like to concentrate especially (but not exclusively) on the following periods: the early Holocene (~8000 cal BC), the impacts and consequences of agricultural production (~4000 cal BC) and intensification (~2000 cal BC). More recent periods, focusing on areas outside of Europe, are also welcomed, as the chronology of activities are substantially different to Europe. As we will take a global perspective, we expect diverse regional land use and subsistence practices to be explored. Papers that cover all or parts of these periods and contributions that synthesize understanding of subsistence practices and implications for land usage are welcomed. This session will form part of activities of the PAGES-funded Landcover6k project (http://www.pages-igbp.org/inf/m/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.

This paper outlines the aims of the PAGES-funded Landcover6k project (http://www.pages-igbp.org/inf/m/landcover6k/intro), an international and interdisciplinary working group dedicated to reconstructing global Holocene land use and land cover. The goal of the project is to provide relevant, empirical data on global past anthropogenic land-cover and land-use change to climate modelers. The LandCover6k working group infers land-use data from fossil pollen records (lake sediments and peat deposits), and a range of palaeo-archaeological records (including terrestrial archives and archaeological records including pollen, wood and plant micro/macromains). We focus on regions of the world where humans have had a significant impact on land cover during the last 6000 (6k) calendar years (in some regions earlier than 6k ago) through deforestation and diverse agricultural practices.

We outline why land-use change is important for understanding climate forcing and why its effects on climate remain poorly understood. Among the effects of land-cover change on climate, the best known is biogeochemical effects, in particular the influence on the exchange of CO2 between the land surface and the atmosphere. The biogeochemical effects are less well understood. Moreover, the net effects of both biogeochemical and biophysiological processes due to land-use change are still a matter of debate. The pollen-based reconstructions of past land cover use pollen-vegetation modelling approaches, with mapping of pollen-based land-cover change using spatial statistics; historical and archaeological data are upscaled and summarized onto maps of major land-use categories. The results of both activities will then be used to review existing Anthropogenic Land-Cover Change (ALCC) scenarios, which presently use models to reconstruct human impacts (e.g. Kaplan et al. 2009; Klein Goldewijk et al. 2011). Our major focus is on the reconstruction of land-use history; the goal is to ensure that interpretations are archaeologically robust, well-informed by current understandings of human land use history and useful to the archaeological community, as well as the 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 differ in various parts of the world. Sometimes, models that have been developed for regions such as Europe form the basis for other area, 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 across space and time and offer the opportunity for the archaeological community to contribute towards globally important issues.

**References:**


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**THS-14 Abstract 02**

**Land Use 6k: A First Assessment of South Asia**

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**Keywords:** Climate Change, Land Use, South Asia

**Presentation Preference:** Oral

This paper will review the current state of archaeological evidence for human land use in South Asia in the middle to late Holocene. The review forms part of a larger effort of the PAGES-supported Landcover and LandUse6k project (http://landuse.uchicago.edu/about/) to reconstruct global land use and land cover datasets for the purpose of improving models of anthropogenic land change cover being used by climate scientists. Here we will present archaeological and palaeoecological data from different regions of modern day India, Pakistan, and Bangladesh in an effort to identify significant changes in agricultural, pastoral, hunting and foraging land use and anthropogenic land cover changes between ca. 6000 BP and 3000 BP. As we will detail, during this period there was an intensification and expansion of agricultural and pastoral land use across many regions of South Asia that significantly affected land cover and other environmental conditions.

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**THS-14 Abstract 03**

**Long-term patterns of Human Land Use in the Temperate Woodlands of Northeastern Mississippi, U.S.A.**

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**Keywords:** Agriculture, Holocene, Land use

**Presentation Preference:** Oral

Decades of archaeological survey and excavation in the upper Tombigbee River drainage of Mississippi, southeastern U.S.A., have produced a large body of data related to demographic, settlement, and subsistence patterns over the course of the Holocene. Using seriations of ceramics and hafted bifaces and absolute dating results, we chart fluctuations over time in human population densities and the exploitation of a range of resources. Marked changes in human landscape use are seen to have occurred during 1) the mid-Holocene, when climate change led to fluctuating environmental conditions; 2) ca. 500 BCE – 1000 CE, when human population growth related to the advent of sedentariness led to increasing hunter-gatherer pressure on local-scale environments; and 3) the adoption of agriculture at ca. 1000 CE, which was selected for in the face of such pressures. We also discuss the different roles that construction of monumental architecture may have played across the changing selective environment over the last 10,000 years in the study area.
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 communities across Eastern Europe and the Balkans. Our treatment considers eastern North America, the Great Plains of North America, and Middle America, including Mexico. We focus on specific time periods within the Middle and Late Holocene, as land use rapidly transformed from generalized foraging, to specialized foraging, to intensively managed commodification (including forms of pastoralism) and later agriculture, with urban centers appearing by 1000 AD in various parts of North America. We conclude with the historic era, 1850 CE, by which time agriculture and other land use practices were industrialized. Land use characteristics such as these are the foundation for the construction of higher fidelity models of recent climate change. This effort contributes to 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.

THS-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 PALYVCZ database (http://botany.natur.cuni.cz/palycz) and recalculated them by the REVEALS model into vegetation estimates. The algorithm considers pollen productivity, pollen dispersal and deposition, when interpreting fossil pollen assemblages. The setting of model parameters was adopted from the previous testing, in which the model was adjusted to the recent vegetation in the same regions. Actual regional vegetation (60 km radius) was obtained by combining the CORINE Land Cover map with forest inventories, agricultural statistics and habitat mapping data. Among the vegetation estimates of different taxa, Cerealia is ca. 10 times higher than the prediction of the archaeological model. We interpret the mismatch by providing sources of possible biases: REVEALS model assumes that pollen record originates from one large site or several small sites in the even vegetation mosaic, but vegetation in our study area is distributed very unevenly, i.e. sites in the region with the highest signal of Cerealia are oxost 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. 13-11193S and 16-10100S.

THS-14 Abstract 06
Animal subsistence in the Eneolithic period from South-East Romania

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Keywords: Eneolithic, Romania, zooarchaeology

Presentation Preference  - Oral

The presence of the first tell settlements in the southeastern Romania and their development between 4700-3500 BC allowed some observation about animal paleoeconomy evolution over several cultural sequences (Boian, Gumețna, Sâlcota and Cernavodă I). Thus, the existences of numerous tell settlements with a complex stratigraphic and chronocultural sequences attested (e.g. Harsova, Vladiceasca, Cacsoarele, Vintenesti, Draganiţa OII, Gumețna) gave us the opportunity to record some changes in the livestock and hunting activities. Regarding the livestock activity, cattle and sheep/goat which prevail, shows highly significant variations by region. The slaughtering curve study 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 complementarituy 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, although, our research allows to assess 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.
In connection with two rescue excavation projects in Southeastern Norway, the Vestyfjeldeplanprosjektet and the project E18-Fugl-veit-Dyrdal, a cooperation between the Museum for Cultural History, University of Oslo, and the Graduate School “Human Develop-
ment and Environmental Change” at the University of Bergen was established, to extract and analyze a core from Lake Skogstjern, Bamble, Telemark. The aim was to supplement archaeological excavation results, mainly traces of coastal settlement dating to the Mesolithic and Neolithic periods, with knowledge on vegetation history. From the comparison of archaeological and archaeobotanical material questions of human impacts on the vegetation during the Mesolithic as well as the process of neolithisation, with the introduction of agricultural practices and animal husbandry in Southeastern Norway, can be discussed. While the latter contributes with important data to an ongoing discussion, the former is a new field of research. The 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 polyomorphs- 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 degrees in landscape openness and the utilization of wet meadows for grazing purposes. Crop cultivation, however, plays a minor role even up to the pre-Roman Iron Age. According to the pollenanalytical data the establishment of a full farming community is taking place exclusively in the centuries AD. characterized by a general expansion and intensification of the land-use as verified by extensive forest clearances and fires, crop cultivation on permanent fields and the presence of open pastures as well as associated therewith advanced soil degeneration and increased erosion rates. These results both support as well as challenge the archaeological discussion on the relationship of humans and surroundings and from a mobile to a sedentary way of life.

TH5-14 Abstract 09

A varve preservation record of climate change
and human impact from Lake Tiether See (NE Germany)

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Keywords: human impact, lake sediments, varve chronology
Presentation Preference - Oral

Anually laminated (varved) lake sediments represent unique archives in continental areas providing both, precise chronologies and seasonally resolving proxy data. Lake Tiether See in NE Germany provides such an archive for an integrated multi-proxy study based on high-resolution sediment analyses. Lake Tiether See was formed during the last glaciation and is part of the Klocksin Lake Chain, a subglacial channel system that crosses the Pomeranian terminal moraine. Coring campaigns at the deepest part of the lake (82 m water depth) yielded 7 sediment profiles. From these individual profiles a 7.7 m long composite profile has been compiled covering the past ~6000 years. The chronology of the core sequence is based on a multiple dating approach including varve counting, radiocarbon dating of terrestrial plant remains and tephrochronology. We present a combined approach of micropalaeocologies analysing thin sections, μ-XRF analyses on split sediment cores, geochemical analyses of bulk samples, diatom and cladocera analysis and reconstruction of vegetation openness from pollen data. Furthermore, we include archaeological data from the study area characterising human settlement phases.

The sediment record of Lake Tiether See exhibits distinct decadal- to centennial-scale alternations between wet- and non-varved intervals with an increasing trend of non-varved periods since ~4000 yr cal BP. These non-varved episodes generally coincide with phases of increased vegetation openness as reconstructed from pollen data. Predominantly varved intervals before AD 1924 are characterized by low productivity and concur with closed forests in the lake catchment. In contrast, well-preserved varves after AD 1924 are linked to increased lake productivity likely due to anthropogenic eutrophication. In this study we discuss the influence of climate change on varve preservation. We propose that the observed long-term increase of non-varved intervals is linked to gradual climate change in the Late Holocene triggered by insolation change, whereas superimposed centennial- and decadal variability of varve preservations caused by a complex interaction between human activity and short-term climate changes. We furthermore discuss possible relationships between known climate variability and human history at Lake Tiether See. This study is a contribution to the Virtual Institute of Integrated Climate and Landscape Evolution Analysis – ICLEA – of the Helmholtz Association (grant number VH-VI-415) and uses infrastructure of the Terrestrial Environmental Observatory (TERENO) of the Helmholtz Association.
The main focus of this presentation will be the carpological data available for northwest Iberia, including unpublished material. Carptological data from late prehistoric and protohistoric sites allows 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. 1500 - 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 the development of other features. Developments in storage facilities are also recorded. Especially, underground storage (pits), that proved to be an important strategy for long-term preservation. Moreover, the palaeoenvironmental records suggest significant changes on several levels such as climate and forest cover. Increasing erosion events occur as the result of anthropogenic deforestation to obtain farmland and pasture. Besides their clear differences, these two important moments revealed important economic and social changes. Human communities became sedentary and a process of territorialization took place, enhancing the connection between settlements in Northwest Iberia, a region where good agricultural soils are not abundant. In the first moment (Middle/Late Bronze Age), the oldest evidence of millet, (Panicum miliaceum), a spring crop, suggests changes in agricultural practices and territorial strategies. During the Iron Age, an agricultural system based on a diversity of crops, namely different cereals, existed. In particular, hulled wheats (Triticum dicoccum and Triticum spelta) which were good choices for underdeeming and erosive soils. These different environmental and archaeological records will be presented in order to address the main changes in land cover and land use, namely their relation with the evolution of agricultural strategies and social-ecological systems in Northwest Iberia.

TH5-14 Abstract 12
The anthropization of the Cantabrian Mountains (NW Iberia) during the Later Prehistory
Author - Dr. González Álvarez, David, Universidad Complutense de Madrid, Salas, Spain (Presenting author)
Keywords: Anthropization, Landscape Archaeology, Later Prehistory
Presentation Preference - Oral
This paper attempts to provide a historical narrative that accounts for the biography of the cultural landscapes of the Western part of the Cantabrian Mountains based on a social interpretation of archaeological data and paleoenvironmental sequences. A diachronic perspective is adopted drawing on in the theoretical and methodological framework of Landscape Archaeology. This is achieved by analyzing the patterns of settlement and subsistence deployed by human groups during the five millennia that mediate between the emergence of agriculture and animal farming (ca. 4800 BC) and the Roman conquest of the area under study (late first century BC). In light of the data considered for the mountainous area which separates Spanish contemporary regions of Asturias and León, the investigation reflects about the human experiences and the historical processes that intervened in the anthropization and the social construction of the cultural landscapes of the Later Prehistory in the area. During the Neolithic there is a spread of agriculture and farming. This process can be perceived earlier in the coastal areas than up in the mountains. This resulted in the emergence of humanization processes of the environment characterized by an increase of open areas for pastures and crops related to itinerant forms of production and settlement. Later in the Bronze Age, the anthropization of the territory significantly increased, revealing a certain tendency towards the territorialization of human groups. The Iron Age implied the almost complete adoption of sedentary forms of life by human groups. Iron Age communities developed new livestock and farming practices, now intensified with the emergence of stable crop fields. This new productive pattern led to the emergence of a compartmentalized and highly anthropized landscape around the hillforts. However, this general scheme shows some gaps and exceptions which should be considered in detail. In the first place, they could reveal the limits of the data available for the region but, more interestingly, they might point out the emergence in the social or cultural livelihoods performed by the communities who inhabited the Cantabrian Mountains during the Later Prehistory.

TH5-14 Abstract 13
Human-environment interactions in the Alps: Archaeological and palaeoenvironmental approaches
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Keywords: Alps, Bronze Age, Pastoralism
Presentation Preference - Oral

Our understanding of high altitude (European) alpine landscapes and the economic practices that developed therein has improved radically over the last 15 years, nevertheless there are still many challenges, and numerous geographical areas where little or no research has been carried out. One of the issues facing archaeologists and palaeoenvironmental scientists working in these areas (between c. 1600 and 2800 m asl) is the patchy nature of our various datasets, moreover, human-environment interactions operate at many spatial and temporal scales, and the integration of this data often presents problems. Archaelogical and palaeoenvironmental evidence is a proxy for human-environment interactions; in some instances, we can identify broad categories of economic activities, such as pastoralism and arable agriculture. In other cases, we can identity actual practices, such as pasture creation or forest burning, or the exploitation of specific animal species or the creation of structures for penning animals. In this paper, we will consider evidence for the development of high altitude pastoralism in the French Alps during the Late Neolithic and Early Bronze Age via the integration of data-types that operate at different spatial and temporal scales; archaeology, palaeoecology, and sedimentary aDNA. Within the context of the Alps, we argue that these seemingly disparate data allow us to assess a specific and significant form human niche construction (i.e. pasture) during the Late Neolithic and Early Bronze Age. This can be considered a form of coevolution; the intensification and extension of pastoralism, which included high-altitude summering in the Alps. This was part of a process where a form of agriculture, and the development of a karst landscape in western Ireland

TH5-14 Abstract 14
Chalcolithic-EBA farming, soil loss, and the development of a karst landscape in western Ireland
Author - Dr. Jones, Carlton, National University of Ireland Galway, Galway, Ireland (Presenting author)
Keywords: Chalcolithic, Early Bronze Age, land use
Presentation Preference - Oral

The limestone karstic landscape of the Burren in western Ireland has evidence for human habitation from the Mesolithic onwards. The Chalcolithic and Early Bronze Age periods, however, seem to have been periods of particularly intensive and extensive farming on the Burren. Survey and excavation on Roughan Hill, in the south-east Burren, has documented a dense concentration of habitation enclosures, field divisions, and ritual monuments dating to between c. 2300 – 1500 BC which appear to relate to a particularly intensive phase of farming activity on the Burren. This paper investigates whether this Chalcolithic – Early Bronze Age activity can be related to significant karst development on the Burren (through correlations with palaeoecological and palaeocean data) and also looks at whether contemporary climatic shifts might have played a role. This informs both our understanding of prehistoric farming practices and also the role of human activities in the formation of karstic landscapes.

TH5-14 Abstract 15
Seeing Beyond the Site: Later Prehistoric Landscapes of southeast Ireland
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Keywords: archaeology, Ireland, palaeoenvironments
Presentation Preference - Oral

In this paper we outline the initial results of an integrated palaeoenvironmental and archaeological study from southeast Ireland, funded by RESTA (The Heritage Council, Ireland), which has been investigating changes in settlement patterns and subsistence from the late Bronze Age into the Iron Age as derived from extensive, well dated, palaeoecological data from ‘Flat Tiger’ era development-led excavations. The project has compiled and critically assessed the evidence for lifeways and subsistence strategies derived from multiple archaeological sites, including data from faunal and macrofossil analyses and chronological modeling of radiocarbon dates. These data have been integrated with evidence for patterns of landscape change and human...
activity derived from palaeoenvironmental records. The study opens up new perspectives on this critical period in Irish prehistory and also illustrates the methodological and theoretical challenges of interpreting archaeological and palaeoenvironmental data.

TH5-14 Abstract 16
Land use and vegetal biodiversity in the Iron Age landscape of Brittany (France)

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Keywords: Iron Age Brittany (NW-France), land use patterns, vegetal biodiversity
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 decennium, it is easy to understand why. Palaeo-ecological research can provide insights into the relations between past vegetal biodiversity and environmental change. Climate changes and human activities are generally accepted to be the prime drivers behind these processes. Nevertheless, detailed analyses of the correlation between past human agency and vegetal biodiversity in Northwest Europe are still quite rare. In this paper we aim to reconstruct and explain spatio-temporal trends in past vegetal biodiversity by integrating data on vegetation dynamics, human subsistence economy and land-use patterns. The landscape of Brittany (North-Western France) during the Second Iron Age (450-50 BC) is selected as a case study. Compared to many other parts of Northwest Europe, Brittany is rich in high-resolution palaeobotanical data. These allow for the reconstruction of the main long-term trends in vegetal biodiversity, and more generally of the changing fabric of the Breton landscape. At the same time, increasingly detailed images of the Iron Age rural landscape of Gaul start to emerge due to a steep increase in archaeological data (aerial photography, surveys, programmed and development-led excavations). On the eve of the Roman conquest, the landscape of Brittany was dotted with numerous farmsteads and had a 'mosaic' vegetation structure. In this paper we wish 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 sites by employing the methods of archaeology, soil studies, geography, geomorphology, geophysics, geochimistry, palaeobotany provided an opportunity to obtain conceptually new data on the location and operation pattern of winter and summer pastures and camps themselves. To identify temporary camps, it is important to identify those land areas located in proximity to the camps where grazing was the most suitable at certain times of the year, taking into account natural features. For the winter season it has been demonstrated that deeply cut gullies with rather steep slopes facing south, south-west and south-east are most suitable for winter grazing, determining the existence of temporary winter camps in such areas.

The arrangement of summer temporary camps demonstrates a reverse pattern. It is assumed that summer camps and pastures were located near streams on open windswept watersheds rather than near subordinant features of the relief. Such camps can be discovered only if the soil was overlaid by natural deposits, which may occur on sections with sand.

TH5-14 Abstract 18
Hunter-gatherer exploitation of biodiverse Kwongan heathland in Holocene southwestern Australia

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Keywords: Human land use, Palaeoecology, Zooarchaeology
Presentation Preference - Oral

The Kwongan sandplains of southwestern Australia are a global biodiversity hotspot, characterised by diverse, fire-sensitive heathland vegetation and niche-restricted mammalian fauna. Archaeological evidence indicates that Aboriginal people exploited littoral resources along the region’s coastal fringe during the mid- to late Holocene, but use of the biodiverse kwongan heathland landscapes is poorly understood.

In this paper, we explore the archaeological and palaeoecological evidence for human land use and terrestrial resource exploitation in the northern section of the kwongan sandplains. We compare the palaeoecological evidence provided by the small mammal faunal record from two cave sites with the regional archaeological evidence for human occupation and subsistence during the mid- to late Holocene, and explore the connections between human activity, environmental change, and ecological composition through time. This study indicates that while littoral resource exploitation may have been a minor feature of human occupation of the region, particularly after sea levels stabilised in the mid-Holocene, terrestrial and lacustrine resources played an important role in regional subsistence and land use.

TH5-14 Abstract 19
Palynological fingerprint of demographic changes during the Migration Period in northern Poland

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Keywords: Migration Period, N. Poland, pollen analysis
Presentation Preference - Oral

Pollen analysis is a method frequently used in studies on environmental changes provided by past human activity. Pollen data help us to assess dynamics of settlement and provide evidence on some aspects of the economy based on natural resources. In our study we gathered the palynological arguments to reconstruct the timing and dynamics of settlement activity during the first millennium AD in northern Poland. The reported period was a time of considerable demographic, cultural and economic changes which left distinct signatures on the natural environment. In northern Poland, these processes were regionally differentiated because of variation in timing and scale of anthropogenic pressure and due to variation in some natural factors. The main subjects of our lecture are: pollen based reconstruction of settlement dynamics changes in both time and space in northern Poland; an assessment of the scale of changes in forest cover in the period of interest; providing new data for the discussion on the potential persistence of small-scale agricultural activity in the regions of general economic decline during the Migration Period. The results summarizing the pollen data from a number of sites from northern Poland indicate that in the Roman Iron Age the scale of human impact on the forest cover in the most western part of the region was much lower than in the central and eastern parts of the area. The demographic crisis in the Migration Period resulted in a large-scale regional reforestation of the whole area but the scale and duration of reduced settlement activity was different. In this respect the pollen data conform well with the archaeological information. The woodland expansion concerned different dominant tree taxa in the western, central and eastern parts of the area. The new deforestation phase connected with the early medieval took place in different centuries and varied as concerns intensity of the land use. The study was supported by a grant DEC-2011/02/A/H35/00398 financed by the National Science Centre (NCN) in Poland.

TH5-14 Abstract 20
Multiplex analysis of colluvial fan deposits: approach to reconstructing the land use history

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Palynological fingerprint of demographic changes during the Migration Period in northern Poland

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Keywords: Migration Period, N. Poland, pollen analysis
Presentation Preference - Oral

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Keywords: Anthracology, palinology, trace fossils, Geoarchaeology, land use, paleoecology
Presentation Preference - Oral

We’ve hypothesized that such disturbances as forest clearing, burning, ploughing, grazing, and trampling on small watersheds in the forest-steppe transition zone can lead to a rapid and substantial increase in the surface run-off, mass transfer, and accumulation of colluvium in closed depressions and gullies within the catchment areas. Depopulation of the catchment area would, in turn, cause the surface stabilization and either grassland or forest soil formation. The combination of pedological, ichnological, palinological, and anthropochronological studies was utilized to reconstruct the history of human occupation of 6 small watersheds on the East European Plain.

The sites with a good archaeological record were used to form “training sets” for our study. From 4 to 6 cycles of erosion and accumulation occurred in our study sites during the Holocene.

Each cycle began with fires, leading to the increase in run-off and accumulation of colluvial fan deposits, and ended with the stabilization of the surface as grassland or forest was reestablished and an immature soil was formed. The cycles were correlated with the periods of human occupation of the catchment area known from the archaeological survey and radiocarbon dating using the soil charcoal. Sand and gravel size fractions of soils and colluvial deposits contained charcoal of trees and shrubs, herbaceous char, charred seeds and bone fragments, heated mineral aggregates, and insect and animal feces. Eight type assemblages were described in association with various types of forest fires, swidden cultivation, permanent fields, woodland pastures, and open (frequently burned) pastures. Some criteria were proposed to discern the utilization of gullies as roads and droveways. The assemblages were compared with the pollen spectra from the same samples and trace fossils from the same soil horizons/ depositional layers to define a multi-proxy signature of each land use type.

Only a few of the multiple fire occurrences could be attributed to the natural forest fires, the others were associated with the land use practices. According to the radiocarbon dating of charcoal from the type assemblages, a combination of fire and grazing has triggered wide deforestation of potentially forested areas within the forest-steppe zone during the warm climatic phase of the middle Holocene (IV to III millennia BC, the Chalcolithic/Bronze Age). Small-scale deforestation associated with the swidden cultivation is dated here by VII-X cent AD. Frequent burning of potentially forested areas as means of maintaining grazing grounds did not begin until ~X cent AD. The widespread advance of pine in the Late Medieval time could be a direct result of the co-action of herbivory and linear erosion due to overgrazing. Signs of large-term cultivation (plough fields) appear in various regions of the forest-steppe in VII-X 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 boarder (south-east of the Gulf of Finland), in Middle and Late Holocene (5000-2000 cal. BC) was suggested basing on the last decade multidisciplinary studies. This model was improved and got chronological references basing on archaeological data – remains of Stone Age coastal settlements. Strict relations between sea shoreline and human settlements/hunting camps ended at the time of the first farming societies (Corded Ware tradition) appeared in the region.
HU NEW DEVELOPMENTS IN ISOTOPE AND TRACE ELEMENT ANALYSES

Thursday, 1 September 2016, 14:00-18:30
Faculty of History, Room 330
Author - Plomp, Esther, Vrije Universiteit Amsterdam, Amsterdam, Netherlands (Presenting author)
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Co-author(s) - Font, L., Vrije Universiteit Amsterdam, Amsterdam, Netherlands
Co-author(s) - Laffson, J.E., Vrije Universiteit Amsterdam, Amsterdam, Netherlands
Co-author(s) - Davies, G.R., Vrije Universiteit Amsterdam, Amsterdam, Netherlands
Keywords: Human provenancing, Isotope
Presentation Preference - Oral

TH5-15 Abstract 01
Extending the human provenancing repertoire: Neodymium isotopes

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Keywords: Human provenancing, Isotope
Presentation Preference - Oral

Recent developments in mass spectrometry have made it possible to explore the potential of new isotope systems for the provenancing of humans, complementing the existing systems: strontium (Sr), oxygen (O), hydrogen (H) and lead (Pb). The addition of another isotope system to the isotopic human provenance repertoire can potentially provide us with more specific information on the region of origin and thus address some of the limitations that are still associated with the now commonly used isotopic techniques. This study reports on the viability of using neodymium isotopes (143Nd/144Nd) as a candidate to track the origins of humans. Due to the isotopic variations in the crust the samarium-neodymium isotope decay system has previously successfully been applied to identify the production centres of glass archaeological artefacts, usually in combination with oxygen or strontium isotope ratios. The tendency of the human body to bio-purify non-essential elements means that REE concentrations are low in human teeth (Nd <0.1 ppm), such that previously Nd isotope analysis was not possible. We report the optimisation of chromatographic methods to separate Nd from bio-apatite. Sub-nanogram amounts of neodymium were analysed using a latest generation thermal ionization mass spectrometer (TRITON-Plus) equipped with 1013 (t) resistors at the Vrije Universiteit Amsterdam. This study presents the neodymium concentration and composition results of third molars from modern Dutch residents. These results will be compared to other isotopic systems (Sr and Pb) and the possibilities for Nd as an archaeological human provenancing tool will be discussed.

Zinc isotope compositions of bone and dental enamel and their relationship to diet

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Keywords: Archaeological sciences, dietary tracer, nontraditional isotopes
Presentation Preference - Oral

Isotopic analyses of carbon and nitrogen are conventionally employed in bioarchaeology for dietary reconstructions. These elements are however contained in the bone collagen which deteriorates over time. Mass spectrometry advances now allow trace element isotope analyses of biogelate. 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 (13C and 15N) 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.

Hydrogen stable isotope ratios measured in bone collagen from Danish prehistoric samples

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Keywords: Hydrogen, Bone, palaeoeciel
Presentation Preference - Oral

Palaeoecological studies commonly analyse 13C and 15N ratios in archaeological bone to infer past dietary habits, although 15N ratios can be influenced by a range of factors other than diet (acidity, manuring, soil conditions, etc.). 13O ratios have been shown to function as a trophic level indicator (Birach et al., 2005; Reymard and Hedges 2008), which can be very useful to aid our interpretation of the 13C and 13O ratios and improve our understanding of palaeodietary habits and subsistence practices. Hydrogen in organic consists of a non-exchangeable and exchangeable fraction; the latter will equilibrate with atmospheric hydrogen with atmospheric hydrogen from water vapor in the lab environment, resulting in meaningless values. This fraction needs to be calculated in order to obtain the non-exchangeable fraction which represents the true values. By applying a 2-stage equilibration method, sample specific and process specific factors influencing exchange rates are compensated for (Meier-Augenstein et al., 2011). Recently developed standards packed in silver tubes containing water of known isotopic composition (Qi et al. 2010) can be analysed alongside solid samples in the same run, which is essential to avoid scale compression. While this method is not novel (Bowen et al., 2005; Meier-Augenstein et al., 2011; 2013), its application with the use of Qi et al’s standards to archaeological material is new. In this study we subjected bone collagen samples from prehistoric periods from the Limfjord region in northern Denmark spanning the Mesolithic to the Viking Age to a two-stage equilibration method using the silver tube standards to obtain absolute 18O ratios from the non-exchangeable hydrogen fraction. Birach et al., 2005. Rapid Comm. In Mass Spectrometry 1. Meier-Augenstein et al., 2011. Rapid Comm. In Mass Spectrometry 25. Meier-Augenstein et al. 2013. Bioanalysis 5. Qi et al. 2010. Rapid Comm. In Mass Spectrometry 24. Reymard and Hedges 2008. Journal of Archaeological Science 35.

Hydrogen stable isotope ratios measured in bone collagen from Danish prehistoric samples

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Keywords: Hydrogen, Bone, palaeoeciel
Presentation Preference - Oral

Palaeoecological studies commonly analyse 13C and 15N ratios in archaeological bone to infer past dietary habits, although 15N ratios can be influenced by a range of factors other than diet (acidity, manuring, soil conditions, etc.). 13O ratios have been shown to function as a trophic level indicator (Birach et al., 2005; Reymard and Hedges 2008), which can be very useful to aid our interpretation of the 13C and 13O ratios and improve our understanding of palaeodietary habits and subsistence practices. Hydrogen in organic consists of a non-exchangeable and exchangeable fraction; the latter will equilibrate with atmospheric hydrogen with atmospheric hydrogen from water vapor in the lab environment, resulting in meaningless values. This fraction needs to be calculated in order to obtain the non-exchangeable fraction which represents the true values. By applying a 2-stage equilibration method, sample specific and process specific factors influencing exchange rates are compensated for (Meier-Augenstein et al., 2011). Recently developed standards packed in silver tubes containing water of known isotopic composition (Qi et al. 2010) can be analysed alongside solid samples in the same run, which is essential to avoid scale compression. While this method is not novel (Bowen et al., 2005; Meier-Augenstein et al., 2011; 2013), its application with the use of Qi et al’s standards to archaeological material is new. In this study we subjected bone collagen samples from prehistoric periods from the Limfjord region in northern Denmark spanning the Mesolithic to the Viking Age to a two-stage equilibration method using the silver tube standards to obtain absolute 18O ratios from the non-exchangeable hydrogen fraction. Birach et al., 2005. Rapid Comm. In Mass Spectrometry 1. Meier-Augenstein et al., 2011. Rapid Comm. In Mass Spectrometry 25. Meier-Augenstein et al. 2013. Bioanalysis 5. Qi et al. 2010. Rapid Comm. In Mass Spectrometry 24. Reymard and Hedges 2008. Journal of Archaeological Science 35.
TH5-15 Abstract 04
Stable isotope ratios and trace elements in modern mammal tooth enamel

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Keywords: biomarker, isotopes, trace elements
Presentation Preference - Oral

Bioapatite from mammal tooth enamel is a popular biomarker used in the reconstruction of palaeoenvironment and paleodiet. It records information about the animal’s environment and diet on a sub-annual scale and is proven to be highly resistant to diagenesis, allowing the preservation of its original chemical composition through archaeological and geological timescales. In this study, stable carbon and oxygen isotope analysis are used as a stepping stone to investigate the use of other chemical proxies for the reconstruction of environment and diet from mammal teeth. Concentration profiles of trace element distributions (measured with μXRF and cross-validated with Laser Ablation ICP-MS) and stable isotope ratios (δ13C and δ18O) are combined to test the reliability of trace element profiles from mammal teeth in recording seasonal changes in environment and diet of the animal. A method is presented that links the various geochemical records within a tooth sequence using mineralization sequences and oxygen isotope seasonality. This way, a 3 year trace element and stable isotope record from horse tooth enamel is created showing seasonal variations 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 paleodiet. 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 isotope
Presentation Preference - Oral

Strontium isotope (87Sr/86Sr) and rare earth element (REE) analyses of rock, the leachable fraction of soil, plant and surface waters are applied as chemical proxies to assess chemical reservoir interactions, element bioavailability and geographic variability. These processes are the basis for geographic discrimination and associated archeological provenancing. 53 soil samples were collected from a small geographic area in Co. Meath, a region of Ireland that has highly variable bedrock and surficial geology and hosts significant archaeological sites including, Newgrange, the Hill of Tara and Knowth. These multi-element and isotope geochemistry geographically constrain this region and the high degree of spatial variability in 87Sr/86Sr highlights the inherent requirement for high-density sampling in order to isotopically characterise distinct reservoirs. The results of this study provide a baseline of biophere geochemical data that can be applied to archaeological studies examining the past migration of populations in this archaeologically important region.

TH5-15 Abstract 06
The potential of large-scale seasonality studies, results from the Farasan Island shellmound complex

Author - Dr. Hausmann, Nikias, Foundation for Research and Technology - Hellas, Heraklion, Greece (Presenting author)
Keywords: LIBS, Seasonality, Shellmound
Presentation Preference - Oral

The Farasan shell mounds are one of the largest traces of the Arabian Neolithic Period, with over 3,000 sites having accumulated between 7,000 and 4,000 cal BP. Seasonality data based on stable oxygen and carbon isotopes have determined year-round exploitation of shellfish. Additionally, they revealed patterns of seasonal stratification within individual layers. This was used to determine sub-annual accumulation rates, exploitation intensity, and degrees of bioturbation within the stratigraphy. This dataset is now being analysed more thoroughly by using Laser Induced Breakdown Spectroscopy (LIBS). LIBS is a rapid and cost-effective laser ablation method, that is able to measure the elemental composition of shell carbonates to determine season of death. By providing a high sampling resolution (<100μm) and short processing time, large sample sizes can be analysed in great detail. In turn, it allows us to analyse exploitation and accumulation patterns of the Farasan Islands in more detail. More specifically, this study aims to answer questions regarding (1) how analysing a larger number of shells per layer changes the interpretation of site seasonality, (2) whether seasonal layering of shell deposits are singular or repeated events, and (3) how accumulation rates based on seasonality can vary throughout the deposit and tells us more about the processes behind shell deposition.
TH5-15 Abstract 09

Trafficking copper: Source of metal artefacts from an Iron Age cemetery in Finland by Pb isotopes

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Keywords: Copper provenance, geochemistry (ICP-MS, pXRF), Pb isotopes (ICP-MS)

Presentation Preference - Oral

The Levittufa archaeological site, located in western Finland, is an Iron Age (ca. 300-800 CE) cemetery, where skeletal remains of ca. 100 human individuals, buried or sacrificed in an ancient lake or pond, have been excavated. Based on studies, most of the dead were women and children. The artefacts recovered at the site include an assemblage of copper-based artefacts, mainly jewellery and items for personal adornment, made of bronze, brass and copper. The artefacts include a variety of finger, arm and neck rings, and different brooch types, representing, for example, Scandinavian designs. In addition, a Vastaland type bronze cauldron, typologically identified as a foreign import, was found at the site. In this study, portable X-ray fluorescence spectrometry (pXRF) and inductively coupled plasma mass spectrometry (ICP-MS) were employed to examine the type of alloy, lead isotopes and geochemical compositions of the artefacts. pXRF analysis was applied on the entire assemblage and objects that allowed only non-invasive, non-destructive measurements due to their extremely high antiquarian value. Nine of the metal artefacts were sampled for lead isotopes (206Pb, 207Pb, 208Pb) and trace elemental analyses by ICP-MS to examine their provenance and possible raw material origins, i.e. the locations of the extracted copperores. The results show that different types of alloy were used to manufacture typologically related objects. The source of the copper, however, appears to be shared by most of the samples analysed by ICP-MS based on the lead isotope data. The results of this study, together with our previous work, highlight the potential of using scientific methods to reconstruct economic behaviours of past human societies. We therefore believe that the methods presented here, together with the results from this study, can be employed in future research to reconstruct economic and social aspects of Iron Age societies in Finland and elsewhere. The potential of lead isotopes as a tool for provenance studies is demonstrated in this study, and we hope that it will be used in future research to gain a better understanding of the complex processes involved in the production, distribution and use of copper artefacts in Iron Age societies.


TH5-15 Abstract 11

Iron Slag and the Quest for Provenance

Author - Bbauzly, Em Aarhus, Denmark (Presenting author)

Keywords: Iron, Provenance

Presentation Preference - Oral

Over the past 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 Uninet centre based at the University of Aarhus is facilitating the collaboration of geologists and archaeologists and aims to employ a multi-analytical approach in order to determine the extent to which the chemical composition of iron ores is preserved in the iron slag. We investigate the slag from east Africa (mainly coastal sites), presenting the potential for both, local and imported material. The artefacts are subjected to petrographic, metallurgical, elemental and isotopic analyses in order to determine the validity of methods and the feasibility of further analyses. Theoretical experiments are devised and performed so as to replicate thermodynamic processes and define their significance in altering elemental and isotopic ratios. We hope to share the preliminary results and stimulate conversation on potential further approaches that may be taken in order to improve the data and overcome some of the challenges we are facing.

TH5-15 Abstract 12

Interpreting Heavy Elements Traces in pXRF Analyses on Prehistoric Copper Alloys

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Keywords: copper alloys, trace element, XRF

Presentation Preference - Oral

X ray fluorescence analysis for metals has become a valuable addition to the available methods of doing archaeometallurgy; if, on one hand, the method’s limits are confined to only a few microns depth from the surface, the non-destructive nature of the method allows for as many samples as wished to be taken, and to have at our disposal a huge amount of data, previously inaccessible, that can be used to calibrate and compensate the limits of the analysis method. The most recent generation of instruments...
are able to detect elements in traces; these data, in prehistoric archaeometallurgy have been used not only to understand the composition of a prehistoric alloy, but even to understand which ores have been exploited to obtain the metal. 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 Dukšteliai 1 site

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Keywords: Early Mesolithic and Neolithic-Bronze Age, Geochemical and LOI analyses, Human inhabitance

Presentation Preference - Poster

In 2013 an archaeological investigation of the first inhabitants of River Neris basin in Lithuania has been initiated. As a part of the research, a newly discovered prehistoric site Dūkštelės 1 on the lake Dūkštelės 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 Dūkštelės Lake bottom deposits indicated at least two episodes of human inhabitance at the lake shore.

In order to reveal the functional use of the prehistoric settlement elements, two structures were chosen for closer study – a probable hut and a hearth. The research was interdisciplinary: together with archaeological methods of investigation – examination of 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 fluctuation and microscopic bioarchaeological research was done in order to find macro-botany remains that could reveal some details about prehistoric people diet. Geochemical analysis and loss on ignition method (LOI) were also used to find out if there are any elements significant for interpretation but undistinguished during the archaeological excavation.

The samples for geochemical and LOI analyses were collected from the structures as follows: in the middle of the structure, 20cm from the centre and in periphery. It was presumed that the latter represented less disturbed soil. Determination of major and trace elements Al, Ba, Br, Ca, Cl, Cr, Cu, Fe, Ga, K, Mg, Mn, Na, Nb, Ni, Pb, Rb, Si, Ti, Zn, S was done using energy-dispersive x-ray fluorescence Spectro Xepos equipment and the Turboquant calibration method for pressed pellets. Also samples were dried at the temperature of 110ºC; then heated at 550ºC and 950ºC to burn out the organic matter and carbonates.

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 Dūkštelės 1 site.
This presentation reports on the results of multiproxy palaeoenvironmental investigations carried out in association with archaeological survey and excavation of late prehistoric woodland tracks at Littleton Bog, Co. Tipperary, Ireland. The site has a long association with palaeoecological research in Ireland, beginning with pioneering work carried out by Frank Mitchell at Littleton in the 1950s and 1960s that has provided a basic framework for the vegetation history of Ireland still in use to this day. Mitchell’s palynological work emphasised the significant effect that past human societies have had on shaping environments in Ireland, and hinted at complex interrelationships between environmental change and human activity. The archaeology of Littleton Bog, now a drained and milled peat production site, was surveyed in 2008 and this was followed by targeted excavations carried out in 2008 in advance of peat extraction; excavation revealed over 30 archaeological features, mostly wooded trackways, of which 3 features have been dated ranging from the Early Bronze Age (ca.3500 cal BP) to the Iron Age (ca.2000 cal BP). A high-resolution multiproxy palaeoenvironmental record from the site was developed to provide palaeoenvironmental context for the rich archaeological record, and to assess the interactions between human activity and past environmental change at the local scale. This record, spanning from ca.4000 cal BP onwards, comprises testate amoebae, plant macrofossils, pollen, fungal spores, mammal, insect and plant macrofossil and pollen data. The testate amoebae, plant macrofossil and humification-derived bog surface water (BSW) records show broad agreement, but comparisons with recently published regional reconstructions indicate that the BSW record of Littleton Bog is influenced by the complex interactions between regional climatic forcing, autogenic internal bog processes, and other contingent factors. Regional-scale comparisons between peatland BSW and archaeological records indicate that there is no simple linear relationship between trackway construction and environmental conditions, a finding that is broadly supported by the data from Littleton; however, the timing of trackway construction at Littleton does indicate that localised, perhaps partially 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 production bogs provide a key opportunity to examine the complex interactions between both allogenic and autogenic environmental change and human activity.

A 8000 year 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, clastose, chromids, 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 3000 cal BP, birch and willow were replaced by lowland birch forest. 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, fungal spores, mammal, insect and plant macrofossil and pollen data. The testate amoebae, plant macrofossil and humification-derived bog surface water (BSW) records show broad agreement, but comparisons with recently published regional reconstructions indicate that the BSW record of Littleton Bog is influenced by the complex interactions between regional climatic forcing, autogenic internal bog processes, and other contingent factors. Regional-scale comparisons between peatland BSW and archaeological records indicate that there is no simple linear relationship between trackway construction and environmental conditions, a finding that is broadly supported by the data from Littleton; however, the timing of trackway construction at Littleton does indicate that localised, perhaps partially 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 production bogs provide a key opportunity to examine the complex interactions between both allogenic and autogenic environmental change and human activity.

Reconstructing cattle management in Neolithic Switzerland using multi-isotopic analysis

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Keywords: Multi-isotopic analysis, cattle management

Presentation Preference - Oral

The lake settlements in Switzerland provide the unique opportunity to study various aspects of the Neolithic society and its economy. Understanding cattle management is one of the key questions in our research project that focuses on several sites in the lower Lake Zurich basin and the site of Arbon Bleiche 3 at Lake Constance. The lower Lake Zurich basin is an archaeological micro-region that permits the study of a long chronological sequence of more than 2000 years, while Arbon Bleiche 3 is a single-phased settlement with a fifteen-year long occupational phase (3384–3370 BC) providing the opportunity to capture a ‘snapshot’ in time. At 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)?

Insights into crannog occupation phases from National Sites and Monuments Records

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Keywords: crannog, GIS, Wetland, Medieval, Iron Age, Ireland, Scotland

Presentation Preference - Oral

Crannogs are man-made islands that are ubiquitous on the north-western fringes of the British Isles. Over 1500 have been identified, but their function is not that well understood, with some crannogs apparently simple workshops, while others were royal occupation sites. They were built mainly during the Iron Age and Medieval Periods, but there is evidence that this tradition started in the Neolithic and some sites were occupied into the 17th Century.

In this paper, the potential drives for crannog construction are examined, by analysing the distribution of crannog dates both chronologically and spatially. For this purpose, a database of crannogs was constructed from the sites and monuments records of Scotland, Ireland and Northern Ireland. Two types of analysis were performed on the dataset: a probability density function and the allocation of crannog dates to time intervals, which might be compared

By comparing the distribution of crannogs to known climatic events, the theory that low late levels might have contributed to their expansion can be explored. The spatial distribution of crannogs is also compared to the probable extent of nearby kingdoms and the timing of political events, such as the impact of the outcome of the Battle of Mora in AD 637, to gain a deeper understanding of the defensive and/or status properties of these sites. To assess whether local wealth may have been a factor in the construction of the sites, the distribution of crannogs has been compared to major transport networks in the late Prehistoric and Medieval periods. This study can be used to support the archaeological interpretation of the individual sites and attempts to develop a large scale understanding of crannog construction and occupation.
TH5-16 Abstract 06
The Early Iron Age 'lake village' at Black Loch of Myrton
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Keywords: crannog, lake village, iron age, scotland
Presentation Preference - Oral
The discovery of the remains of a spectacularly well-preserved settlement at Black Loch of Myrton, South West Scotland has opened up the possibility for an investigation of early Iron Age society in northern Britain that goes far beyond what has been previously possible. With recent breakthrough in dendrochronological dating of 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 populated these lake areas in the British Isles can be constructed to a level of detail never previously possible. This paper will present the archaeology of the Black Loch village recorded so far, and consider the hypotheses that will be tested through the multidisciplinary palaeoenvironmental techniques used by the Celtic Crannogs project.

TH5-16 Abstract 07
Investigating Iron Age lakeside settlements within their palaeoenvironmental context
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Presentation Preference - Oral
Palaeoenvironmental methods offer the opportunity of retrieving information from a range of proxies around lakeside settlement usage that would otherwise be difficult to obtain without excavation and can augment studies where excavation is possible. These methods also allow us to place these sites within a wider environmental context which can aid our understanding of local and regional conditions across the time period in question. Sediments are retrieved both on and adjacent to, these structures and can be analysed for ecological, biological and environmental data. Here, we present palaeoecological data, in particular Coleoptera (beetles) and Chironomidae (non-biting midges), from archaeological excavation deposits and parallel lake core sediments from Black Loch of Myrton, Scotland. This Iron Age 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. Sediments from parallel lake core indicate a shallow, productive lake system showing nutrient changes over long timescales, and highlight the effects of lake settlement construction on the adjacent small lake system. Results are compared with other lakeside sites and crannogs of comparable situation to provide an overview of living conditions associated with these types of sites.

TH5-16 Abstract 08
How could Crannogs impact on lake environments?
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Keywords: crannog, lake village, iron age, scotland
Presentation Preference - Oral
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. Sediments from parallel lake core indicate a shallow, productive lake system showing nutrient changes over long timescales, and highlight the effects of lake settlement construction on the adjacent small lake system. Results are compared with other lakeside sites and crannogs of comparable situation to provide an overview of living conditions associated with these types of sites.

TH5-16 Abstract 09
From the lakeshore: settlement and technology in the later Mesolithic
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Keywords: Lough Kinale; crannog; beetles
Presentation Preference - Oral
Excavations undertaken under the aegis of the Discovery Programme, Dublin ([www.discoveryprogramme.ie] between 2013 and 2019 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 peat lenses built beside, or into, the adjacent lake, with up to five different occupation phases. Within these layers are a variety of archaeological features, including upright stakes, wooden ‘platforms’, huts, and abundant lithics (Frederengen, 2010). Bioarchaeological investigations of the site have been undertaken as part of a DEI funded PhD research project. Results from fossil beetles and dung fungal spore analyses suggest the presence of structures maintained over the Late Mesolithic phases of the site’s usage. Synanthropic beetles typically associated with thatching and/or bedding materials indicate the persistence of dry, sheltered areas across the site. This evidence is significant and challenges assumptions about the nature of late Mesolithic settlement in Ireland (Woodman, 2000). Analyses of coprophagous spores reveal the presence of the dung of grazing animals within several specific contexts over the same period. This is intriguing given the apparent absence of large grazing herbivores in Ireland prior to their introduction during the Neolithic. The ‘platform crannog’ appears to have been a well-maintained site occupied on a seasonal or refurbishing 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.
TH5 Science and multidisciplinarity in archaeology

References


TH5-16 Abstract 11

Lake sediment DNA to trace past landscape changes for three different mountain lake-catchment systems in the Alps.

Author - Dr. Giguet-Covex, Charline, University of York, York, United Kingdom (Presenting author)
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Co-author(s) - Poulenard, Jérôme, EDYTEM, Le Bourget du Lac, France
Co-author(s) - Bajard, Manon, EDYTEM, Le Bourget du Lac, France
Co-author(s) - Taberlet, Pierre, LECA, Grenoble, France
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Keywords: Agriculture, lake sediment DNA, taphonomy

Presentation Preference - Oral

During the last decade, an increasing number of studies were interested in the use of lake sediment DNA to trace past landscape changes (plant DNA), agricultural activities (plant, mammal and bacteria DNA) as well as the human presence (human-specific bacteria DNA). However, as all sedimentologists know, the sedimentation in a lake can vary temporally and spatially depending on the variations of processes at the origin of the sediment formation. Moreover, depending on the geological, topographical, climatic and ecological contexts, the sedimentation can be very different from a lake to another. These lake sediments characteristics might affect the aDNA archiving in a various ways including potential biases related to both, the taphonomic processes (DNA source, transfer and deposit) and the analytical process. Consequently, it is now crucial to study these processes to ensure reliable interpretations of the lake sediment DNA results and to improve its potential for palaeoenvironmentalists, archaeologists and historians. In this aim, we combined sedimentological/geochemical analyses with DNA metabarcoding analyses (focused on plants and mammals) on three different mountain lake-catchment systems in the Alps (different relative to their physico-chemical and biological characteristics). We showed the extracellular aDNA retrieved from the sediment mainly comes from upper soil horizons and is transported to the lake being fixed into/onto soil particles. Lakes with high detrital inputs are thus more suitable to archive terrestrial DNA than lakes dominated by autochthonous sedimentation. Furthermore, the hydrographical web has to be well developed to provide a good spatial representativeness of possible plant patches in the catchment. Specific chemical/biological conditions affecting aDNA preservation and/or analysis success were also proposed as explanation for the non-detection of aDNA in one of the lakes. Other less predictable factors, e.g. pastoral practices and animal behaviour, also affect the archiving of aDNA from domestic animals. In particular, determining the type of source of DNA (“point” vs “diffuse”), these factors will affect the detection probability of the animals. All the factors affecting the aDNA record in lake sediments can change over time and can thus significantly affect the reconstructions of plant cover and livestock farming/pasturing histories.

TH5-16 Abstract 10

Insights into the occupation of a Scottish Iron Age wetland village using organic geochemistry

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Keywords: Human-environment interactions, Organic geochemistry, Wetland settlement

Presentation Preference - Oral

The first wetland village discovered in Scotland – Black Loch of Myrton, exhibits excellent preservation of early Iron Age life. It is therefore an excellent opportunity to explore how Celtic people lived and interacted with their environment. This study uses organic geochemistry to answer key questions about the settlement: how many construction and occupation phases occurred? What activities took place and how did they vary over time?

We reconstruct environmental conditions during village development using lipid biomarkers, organic molecular fossils that can be traced back to known biological precursors, and carbon isotopes from a sediment core recovered from the centre of the wetland. These results are compared with other regional climatic reconstructions to explore the role prevailing environmental conditions had on the start of the roundhouse construction and the demise of the village. Human-environment interactions within the wetland are assessed using biogenic silica concentrations, a measure of the abundance of the siliceous primary producers within the ecosystem, which reveal overall changes in aquatic productivity. The extent to which these changes can be attributed to the addition of nutrients from human and animal waste and changes in land use practices is currently being investigated by quantifying sterols, a group of biomarkers that are characteristic of faecal matter input.

In addition, a suite of lipids biomarkers taken from a sediment core from within the roundhouse provides insight into Iron Age activities by using pyrolytic polyacrylic hydrocarbons to reveal fire regimes, n-alkanes to suggest changes in the surrounding vegetative landscape and cropping practices, and faecal sterols and bile acids to indicate the presence of animals within the roundhouses. Changes in the intensities of these activities and the amount of human faecal input reveal how the wetland village dynamics and uses altered over time. Combining these organic geochemical analyses with archaeological investigations provides a more holistic site interpretation and, when compared with other Celtic Iron Age sites, helps to build a clearer picture of societal functioning and change over this time period.

TH5-16 Abstract 12

Science and multidisciplinarity in archaeology

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TH5-17 Abstract 01
Population Genomics of Bronze Age Eurasia
Author - Assoc. Prof. Sikora, Martin, University of Copenhagen, Copenhagen, Denmark (Presenting author)
Keywords: Ancient DNA, Genomics, Migrations
Presentation Preference - Oral

The Bronze Age of Eurasia (around 3500–1000 BC) was a period of major cultural changes. However, it has been debated for decades if the many cultural changes that occurred during this period resulted from the circulation of ideas or to what extent they were accompanied by human migrations. To investigate these questions, we sequenced low-coverage genomes from 101 ancient humans from across Eurasia.

We show that the Bronze Age was a highly dynamic period involving large-scale population migrations and replacements, responsible for shaping major parts of present-day demographic structure in both Europe and Asia. We find genetic evidence for the expansion of the Yamnaya culture from the Pontic-Caspian both into North Eastern Europe as well as into Central Asia. Our findings are consistent with the hypothesized spread of Indo-European languages during the Early Bronze Age.

TH5-17 Abstract 02
What ancient DNA can tell us about the origin and spread of Indo-European languages
Author - Dr. Haak, Wolfgang, Max Planck Institute for the Science of Human History, Jena, Germany (Presenting author)
Keywords: ancient DNA, Indo-European, prehistory
Presentation Preference - Oral

Ancient DNA studies on Neolithic, Early Bronze Age and Bronze Age individuals from Western Eurasia have recently thrown fresh light on migrations in Europe’s prehistory. The Early Neolithic period in Europe (~8,000-7,000 years ago) was characterized by closely related groups of early farmers, which were different from indigenous hunter-gatherers, while Russia was inhabited by a distinctive population of eastern hunter-gatherers with affinity to Palaeanctic Siberians. The Middle Neolithic saw a resurgence of hunter-gatherer ancestry throughout much of Europe, while the contemporaneous Yamnaya pastoralists of the Russian steppes shared about half of their ancestry with the preceding eastern European foragers and the other half with Caucasian hunter-gatherers.

This ‘Yamnaya-like’ steppe ancestry arrived in Central Europe ~4,500 years ago, as Late Neolithic Corded Ware individuals 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 steppe starting from a proposed homeland north of the Black Sea. This third ancient 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 offer a ‘central location’ in the tumulus that show it dates to 2620-2470 BC. The molecular results at date reveal the presence of at least two distinct maternal lineages in this population, in most cases rare haplotypes for the modern day European population.

TH5-17 Abstract 03
The story told by Mireasa (Constana) Bronze Age barrow – interdisciplinary approach
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Keywords: Bronze Age, Yamnaya, mitochondrial aDNA
Presentation Preference - Oral

There is a current tendency towards an interdisciplinary approach when testing various hypotheses regarding historical events that contributed to the shaping of modern European populations, especially when considering their genetics. The Bronze Age is a historical time frame characterized by major population movements accompanied by social and cultural changes that influenced present-day populations, but it remains unclear to what extent. Few inferences can be made using traditional sources such as archaeological record or written sources. While this kind of evidence is often ambiguous, in recent years it has been supplemented by genetic data from ancient populations or contemporary genetic patterns, in order to estimate the demographic impact of these historic changes.

This study aims to integrate data concerning the genetic diversity of Bronze Age skeletal remains associated to the Mireasa (Constana) barrow as illustrated by mitochondrial hypervariable regions analysis, physical anthropology of the skeletal remains and stable isotope analysis.

In this manner, a more comprehensive image regarding the cultural and social status of Bronze Age individuals from the southeastern part of Romania, a geographic region that is scarcely represented by genetic data in scientific literature, can be gleaned. Integrating present genetic results for representatives of this population with their contemporaries from other geographic locations may reveal genetic links associated to migratory events. First insights on burial ritual and funerary inventory of these individuals indicate that they are most likely associated with Yamnaya culture, while the radiocarbon analyses of one individual ‘centrally located’ in the tumulus show that it dates to 2620-2470 BC. The molecular results at date reveal the presence of at least two distinct maternal lineages in this population, in most cases rare haplotypes for the modern day European population.

These results are part of an ongoing project and a future point of concern is to assess the genetic relationship between this Bronze Age population and one dated to the pre-modern period discovered in the same geographic area.

This study was supported by funding from the project Genetic Evolution: New Evidences for the Study of Interconnected Structures (GENESIS). A Biomolecular Journey around the Carpathians from Ancient to Medieval Times. (CNCSIS-UEFISCDI_PHI_PCCA_1153/2011).

TH5-17 Abstract 04
Scandinavian Bronze Age rituals, and their Indo-European background
Author - Prof. Anders, Kalff, Uppsala University, Uppsala, Sweden (Presenting author)
Keywords: burial ritual, Cremation, Cosmology, Indo-European, Religion, Ritual, Sacrifice
Presentation Preference - Oral

In my research I try to interpret remains of ancient Scandinavian ritual, against a larger Indo-European background. Like the Indo-European languages, is also Indo-European religion an old concept, first constructed in the 1800s, when the comparative study of religion emerged as a method. It seemed to be basic features that recur in the religions practiced by different peoples who spoke Indo-European languages, and that parallel to language, important elements of religious beliefs, myths and rituals could also be preserved over time.

In the last few years, there has been a very rapid development in the field of ancient DNA that has revolutionized the question of Indo-European migration in prehistory. The question is no longer whether there is a connection between early Indo-European peoples, but how complex the relationships are and how they occurred. In 2014 and 2015 came finally the first really convincing DNA studies regarding the ancient Indo-Europeans, results that fully support the ideas of Indo-European spread by migration. Far hundred percent proof that this migration really brought languages, is missing still, of course, but it could be assumed with almost certainty. According to the hypothesis I try to test in my 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 allomorphs, that is, alternative guises of each other. As

Keywords: Bronze Age, Yamnaya, mitochondrial aDNA
regards both fire-sacrifice, and also cremation, the link to homology is evident. One significant example is the Vedic fire-rituals (including cremation of the dead), that are performed as repetition of the creation and has a deep cosmological significance. This cosmology – with parallels in several old Indo-European religions, including for instance the Old Persian (Zoroastric) religion, Old Baltic, Germanic and Old Norse beliefs had a fundamental impact on the eschatological beliefs, and accordingly on the burial rituals. Flesh and earth, for example, are considered to be the same material substance and can thereby be transformed into each other. In the same way, bones, the hard part inside the soft flesh, are equipped with the stones in the earth and with rocks and mountains, while hair is associated with plants. Life consists of a limited number of elements from which everything is composed. My paper will discuss this with focus on finds from some recently excavated ritual places in eastern Sweden, and interpret the finds in the light of a broader Indo-European background. I will use the Old Vedic ritual system as one important comparative, and also focus on a discussion of the interpretations in the light of the new results from ancient DNA studies.

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 sages 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 Humeric places (Toïy, Itcha, Faro) along with Ulysses’ wanderings can still be identified today. Moreover, this archaic Achaean civilization extended on all the Baltic coasts, such as, for instance, along the Swedish coasts, where today’s Bay of Bothnia is the ancient Aula, where the Achaean fleet, according to the Iliad, gathered before sailing for Troy. As regards the Baltic Republics (Estonia, Latvia, Lithuania) there are many convergences with Greek mythology. The blond Achaeans who founded the Mycenaean civilization in the Aegean in the 16th century B.C. brough these tales from Scandanavia to Greece after the end of the “post glacial climatic optimum”. They then rebuilt their original world – while 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 Humeric poems and the rest of Greek mythology are the last memory of the facts and events happened in the last 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 millenium BC, was recently found by Swedish archaeologists in the site of Bjæstamon, near Hernø.

Keywords: Homer, Achaean, Troy, Bronze age, Northern Europe
Presentation Preference - Oral

The Settlement System of Pit-Grave Culture of Central Ukraine

Authors: Vuypol, Mykhaylo, Cherkesky Archaeological Museum, Cherkesky, Ukraine (Presenting author) and Cherkesky, Ukraine, Ukraine (Presenting author)
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 (Daislatyn). It belongs to the most widespread type: 1) the settlements on small (0.5-1 ha) sites (or peninsulas) in wide floodplains of the Dnieper River and its tributaries. The Daislatyn type settlements have a relatively thin (0.4-0.7 m) and a rich archaeological layer (up to 100 finds per 1m2).

Small (0.1-0.3 ha) and poor in relics (1-10 finds per 1 m2). temporary sites have been found in 2) floodplain sites/pensinus (often near basic settlements) and under the conditions of high topography: 2b) at the top of waterwards 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 Pit-Grave culture, though the waterhiselt subtype is a new one.

The data deriving from the study of these settlement relics suggests that the Pit-Grave population of the Middle Dnieper Area practised transhumance, insignificantly complementing their diet with the help of fishing, hunting and food gathering. The vast majority of the population lived in basic settlements, located on the floodplain sites in collectives of 50 to 100 persons (mostly 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 kilometeres, while women, children and old people remained in the basic settlements.

Keywords: Pit-Grave, Ukraine, Settlement System
Presentation Preference - Oral

Archaeological Modeling of the Spread of Indo-European Traditions in Late Prehistoric Eurasia

Authors: Johnson, James, University of Chicago, Chicago, United States of America (Presenting author) and Johnson, James, University of Chicago, Chicago, United States of America (Presenting author)
Keywords: Archaeological Modeling, Demography, Indo-Europeans
Presentation Preference - Oral

Echoes of Marija Gimbutas’s highly influential research still permeate the more recent work on the spread of the Indo-European languages. The course work focusing on the homeland of the Proto-Indo-Europeans. Many of the recent scholarly efforts are focused on how culture history and change might be best applied to the multi-dimensional, and subsequently multi-disciplinary, nature of the problems inherent in research on the Indo-Europeans. While much of the discipline of archaeology has leaned trenchant critiques against the broad brush strokes of culture history, recent Indo-European scholarship shows little to no overt interest in the updated, and now commonplace, theoretical approaches in archaeology.

This paper seeks to provide more nuanced understandings of events and process into archaeological inferences about the prehistory of the Indo-Europeans, with a primary focus on how populations aggregations break down and disperse. Current efforts in the study of Indo-Europeans have focused on individuals or small groups including: the weight 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 steps to Central and Eastern and 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.

Keywords: Archaeological Modeling, Demography, Indo-Europeans
Presentation Preference - Oral

The origin of Corded Ware culture, which is associated with Indo-Europeans in Central and Northern Europe have disputed for almost a century. Two major explanations have been proposed, a massive migration of Yamnaya or PtGrave 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

Keywords: Indo-Europeans, Corded Ware, Culture
Presentation Preference - Oral

No analogies of the large protoestatements, such as famous Low Dnieper Mikhytyvke, have been discovered so far. However, the ruined Pit-Grave object 3) on the promontory of the high (20m) and steep bank of the Dnieper River in the town of Kaniv could represent the remnants of a local protoestatements centre.
smaller innovations or gradual local changes played the main role in the cultural transformation of a very wide region (Bankoff & Winter 1999, 175). However after 3000 BC a new type of sites and artefacts appeared in the Baltic Region. On the basis of these radical changes in material culture one can claim that almost all aspects of human life, social, ideological and economic has changed radically. After a recent studies of ancient DNA (Allentoft et al. 2015; Haak et al. 2015) a new important data were added to old debates of linguists and archaeologists.

The aim of the paper is to compare archaeological data of Corded Ware and post Corded Ware people from the East Baltic Region to the data of Pontic-Caspian stepping, and to try to find traces of cultural influences. A new DNA discoveries will be used as well.

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**THS-17 Abstract 10**

Visitors from the Steppes. The Scandinavian perspective

**Author** - Prof. Randborg, Klaes, University of Copenhagen, Copenhagen, Denmark (Presenting author)

**Keywords:** Neolithic, Scandinavia, Steppe contacts

**Presentation Preference:** Oral

The archaeological interest in the Steppes has deep roots, including hypotheses about an eastern origin of the Corded Ware Culture, supposed migrations of the same, and even the introduction of the Indo-European languages, as suggested by G. Childe in the 1920s and later on elaborated by M. Gimbutas (Gimbutė, 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. Renfrew’s viewpoint of the 1980s was that the first Indo-European languages arrived with and developed in Europe among the first people carrying Neolithic farming and rearing of domesticated animals (Renfrew 1987). This idea has a ring of simplicity about it when correlated with the basics of archaeology: Neolithic expansion from the Near East and Anatolia to southeast Europe extended to Central Europe and later on to the North, with a parallel Neolithic expansion from Anatolia to the Mediterranean and on to Western Europe.

The paper examines the archaeological elements of possible Steppe origins in Scandinavian Neolithic and how these correlate with the aDNA findings.

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**THS-17 Abstract 11**

The introduction of Indo-European in the later South Scandinavian Neolithic

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**Co-author(s):** Kroonen, Guus, University of Copenhagen, Copenhagen, Denmark

**Keywords:** Corded Ware, Indo-European, Proto-Neolithic

**Presentation Preference:** Oral

With the exception of Basque, Finnish, Estonian, and Hungarian, the modern linguistic landscape of Europe is almost entirely shaped by a single language family: Indo-European. This particularly 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 cultural transformation in the third millennium BCE. In southern Scandinavia the first agrarian culture, the Funnel Beaker culture, came to an end overlapping with the emergence of “sub-Neolithic” Corded Ware influences that reached the northern and eastern coastal areas of present-day Denmark from the Scandinavian Peninsula. From around 2850 BCE 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 BCE 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 BCE and combines these evidences into a unified hypothesis on when and how Indo-European language was introduced into northern Europe and southern Scandinavia. After being introduced together with Corded Ware features in central and western Jutland it seems that the implementation of Indo-European happened gradually via long-term cultural transformation processes.

However, in order to understand the cultural and linguistic processes that allowed the introduction of an entirely new language family it is important also to consider the long gone predecessor of Indo-European. This extinct language we refer to as “Proto-Neolithic”. Did this unknown language for example contribute to the new Indo-European languages? Did this views help to form the basis for the vast majority of modern European languages? One further aspect is where we should place the language spoken by the Pitted Ware people and furthermore if it had any impact on the larger language development. Do we still carry relics with us in modern Germanic that can be traced down to the Proto-Neolithic language spoken by the Funnel Beaker farmers - and perhaps even also elements of a Pitted Ware language?

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**THS-17 Abstract 12**

Linguistics and archaeology: A reassessment of the Indo-European homeland problem

**Author** - Dr. Olander, Thomas, University of Copenhagen, Copenhagen S, Denmark (Presenting author)

**Keywords:** Indo-European homeland, Indo-European languages, Linguistics

**Presentation Preference:** Oral

When searching for the so-called Indo-European homeland – the place from which the Indo-European languages spread at some point in prehistory – there is a discrepancy between the opinions of archaeologists and historical linguists. Different methodologies in the two fields lead to preferences for different scenarios.

Popular among archaeologists is the “Anatolian hypothesis”, which locates the Indo-European homeland in Anatolia around 6,500 BC and sees agriculture as the main factor in the spread of the Indo-European languages; this hypothesis, however, finds very limited support among historical linguists. A competing view, the “steppe hypothesis”, puts the homeland in the Pontic–Caspian steppes around 4,000 BC; this is the scenario preferred by many historical linguists, and also by a few prominent archaeologists. While accounting more convincingly for the linguistic evidence, the steppe hypothesis has been criticised for not providing a plausible motivation for the success of the Indo-European languages. Here the Anatolian hypothesis has an advantage as it correlates it with the spread of agriculture.

Research in ancient genetics has now shown that there was indeed an indisputable migration from the steppe within a time frame that matches that of the steppe hypothesis. The new results have a great potential impact on the discussion of the Indo-European homeland problem and may eventually bridge the gap between archaeology and historical linguistics.

This paper shall reevaluate the linguistic evidence on the time and location of the Indo-European homeland, focusing on the methodological questions that have frequently given rise to misunderstandings between historical linguists and archaeologists.

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**THS-17 Abstract 13**

The canonical Indo-European model and its underlying assumptions

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**Keywords:** genetics, historiography, Indo-European

**Presentation Preference:** Oral

Throughout the 19th century, resemblances and correspondences between Indo-European languages formed the foundation of modern Indo-European studies. At the same time, these resemblances and correspondences were explained, from the start, by the postulated existence of an original people (Urvolk) who spoke an original language (Ursprache) in an original homeland (Urheimat), three entities which were waiting to be rediscovered or reconstructed. As we are well aware, this research was subject to ideological hijacking on a number of occasions. In any case, however, it cannot be said that any of this research would have ended in scientific consensus. Beyond the systems of phonological and morphological correspondences, there is no consensus among linguists regarding the possibility of ever achieving the reconstruction of a single language based on a tree model, or whether more complex models might be more suited. While comparative mythology, exemplified in the work of Georges Dumézil, also reveals undeniable connections across Eurasia, the family tree is, again, not the only possible model. After the mistakes and dead ends of craniometry, genetics are producing increasingly interesting and reliable results, but with a risk of circular reasoning which is amplified by the influence of the English-speaking academic world. Finally, archaeology is still waver in between three main contradictory geographical explanations with no possibility of reconstructing with certainty the suggested routes which might have led Indo-European speakers from an original homeland to their various historically attested settlement locations. This is why we are entitled to question the underlying canonical model as an alternative origin myth to the Bible, while at the same time seeking more complex explanatory models.
TH5-17 Abstract 14
DNA Analysis of Late Bronze Age Funerary Context from Eastern Romania

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Keywords: aDNA, Eastern Romania, Late Bronze Age

Presentation Preference - Poster

The aim of this study is to analyze the ancient DNA and to identify the haplogroup, presenting also the first results obtained on samples extracted from a Late Bronze Age funerary context discovered in Eastern Romania and to identify an efficient and reliable protocol for aDNA extraction. To test whether the protocol is efficient and capable of yielding good quality DNA, extraction was first performed by using the phenol:chloroform protocol and DNA IQ protocols. The funerary context from Tarnia, Bacau county, was discovered in 1972 and consists in a pit in which was discovered a human skeleton in a left supine position. The left hand was flexed and sustain the skull while the right hand was flexed and slightly lodged on the pelvis and the legs were strongly bent on the left side. The osteological remains were in a poor state of preservation. The burial contains two vessels as grave goods which were attributed based on their typological characteristics to the Noua culture (Late Bronze Age).

The sequences were subjected to Nucleotide BLAST (Basic Local Alignment Search Tool, Altschul et al., 1990) to identify the similarities with the previous sequences from data base and haplogroup assignation. The T72 sample shown an identity of 97% with HV1 sequences from a previous study conducted by Lippold et al., 2014. According to Eupedia database, Haplogroup T is composed of two main branches T1 and T2 and the both of them have very different distributions, which are diametrically opposed in most regions. Furthermore, the T72 sequence was aligned with haplogroup T sequences from NCBI and used to construct a ML tree, in order to identify the haplogroup assignation.

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TH5-17 Abstract 15
Circadian rhythms, moods, and Neanderthals: testing a biological explanation for behaviour

Author: Pazan, Kyra, Ann Arbor, United States of America (Presenting author)

Keywords: energetics, genetics, Neanderthals

Presentation Preference - Poster

Many archaeological studies of Neanderthal mobility and behavioural complexity have begun to draw on biological explanations for behavioural differences from Homo sapiens. If Neanderthals demanded higher energetic requirements than H. sapiens, then it follows that behaviours enabling Neanderthals to maximize energy intake would be selected for. Circadian rhythms and moods are closely linked to energy intake. This study investigates the phylogeographic distribution of alleles linked to regulation of circadian rhythms and moods in twenty-one modern European, Asian, and African populations in order to test the hypothesis that these alleles originated in Neanderthal populations in Upper Pleistocene Europe. It is hypothesized that presence of two alleles, rs10994336 and rs1068737, 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 significantly higher frequencies in Eurasian populations sharing a greater percentage of the Neanderthal genome. Conversely, if these alleles did not arise in Neanderthal populations, they would be present in higher frequencies in African populations. It was discovered that latter susceptibility allele is present in higher frequencies in African populations and the former is present in higher frequencies in Eurasian populations. This suggests that these alleles were not selected for solely in Neanderthal populations. The results of this study are significant because they caution against solely biological explanations for differences in the archaeological record.
Archaeology is a discipline without chronological, methodological, political or territorial borders. Yet current territorial divisions and traditional and local ideologies often bind and constrain the discipline in its study of the wider social processes of the past, thereby limiting the development of important, if broad, narratives. There are practical issues also. Lack of sufficiently detailed archaeological datasets, or the inadequate synthesis and integration of the data sets generated by multiple sources hampers interpretation. It presents additional challenges for researchers that seek to build broad regional or, indeed, global narratives. This theme invites contributions that deal with a wide range of phenomena on a regional or global scale, such as technological diffusion, cultural interaction, distribution and spread of plant and animal species, cultural identity, human and cultural mobility and social complexity. In particular, contributions that identify and examine wider social processes through the prism of local datasets are welcomed.

**TH6-01**

**TIES THAT BIND. RELATIONSHIPS BETWEEN THE MOVEMENT OF RAW MATERIALS AND THE MOVEMENT OF ARTISANAL KNOWLEDGE ACROSS EUROPE 2000-1500 BC**

**Saturday, 3 September 2016, 14:00-18:30**

**Faculty of History, Room 214th**

**Author:** Olausson, Deborah, Lund University, Lund, Sweden (Presenting author)

**Co-author(s):** Anderson Brandt, Eva, The Danish National Research Foundation’s Centre for Textile Research, Copenhagen, Denmark

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**Keywords:** artisanal knowledge, raw material, skeuomorphism

**Presentation Preference:** Regular session

Recent developments in proveniencing methods, in particular analyses of stable isotopes, have provided new insights into the movement of materials such as copper ore, wool and amber on the European continent during the dynamic 21st – 16th centuries BC. Today we are able to demonstrate that materials moved from A to B, but the maps fraught with arrows tell us little about what happens in the receiving context. In this session we would like to explore the implications of raw material movement from the perspective of the local artisans. How does the introduction of a new and previously unknown raw material, or objects made from that raw material, affect local artisans, who in many cases lack knowledge about how to manipulate it? One response visible in the archaeological record is skeuomorphism, where local artisans, lacking adequate access to the new material, imitate foreign forms in locally available raw material. This is often interpreted as an attempt to block the influx of new materials seen as a threat by local artisans. Another possible response for the local artisan is to gain the necessary knowledge in order to be able to manipulate the new material him/herself. A third possibility is that the new raw material is accompanied by artisans who are already familiar with its properties.

As raw material movement affects the whole continent, we hope to attract scholars from north to south and from east to west. We would like to gather concrete examples of the three possible responses we outline above, but welcome other possibilities as well.

**TH6-01 Abstract 01**

**The introduction of metals and metalworking in Sicily**

**Author:** Dr. Vianello, Andrea, Sheffield, United Kingdom (Presenting author)

**Keywords:** artisans, Italy, metals

**Presentation Preference:** Oral

Metallurgy was introduced very late in southern Italy, with copper becoming present in the archaeological record with some regularity only in the local Middle Bronze Age. There is a very slow process of introduction of metals that started during the Copper Age, when metallurgy was already developed in northern Italy. Evidence of metalworking is exceedingly rare, with few sites yielding any such evidence until the Middle Bronze Age. There are few mines in the area, mostly in nearby Calabria and only one possible in Sicily. Chemical analyses carried out with a pXRF have demonstrated that the early metals were copper and bronze alloys made with the content of natural ore of copper mines and only later tin was introduced. The limited evidence has been poorly studied, with the main theory remaining for long that artisans from the Aegean developed metals.

In this presentation I aim to assess the development of local metallurgy, focusing on alloys and any technological clue present in the archaeological record, in order to understand the role of local artisans in introducing metals in the region. The preliminary results show that the lack of raw material locally could have played some role in delaying access to the new material, but the most likely reason is some form of control of the new technology, which may be deliberate or accidental. There is no evidence of traveling artisans that could spread the technology or produce demand for the new metal by making it known, and Sicily being a large island at short distance from the mainland, it ended up fully embracing the technology unusually late in spite of the raw material circulating and being mined not far from it. This case study therefore reveals how the movement of artisans, and their technological know-how, was far more important than the availability of the raw materials in the vicinity: you cannot make metal artifacts if you do not know how.
What/who moved? Amber in Mycenaean World

Author: Prof. Czebreszuk, Joanna, Adam Mickiewicz University, Rzeszow, Poland (Presenting author)
Keywords: amber, manufacturing, Mycenaean culture
Presentation Preference: Oral

Among the findings of the Mycenaean culture archaeologist record several thousand objects made of amber. Raw materials for their production (sucinite) in the vast majority came from Northern Europe. Issues that still provoke a lively discussion among researchers are the reasons of this phenomenon and its dynamics. An equally important matter is the perception of amber as a raw material and items made from it in the Mycenaean World. In this regard, it is difficult to talk about the "processing manufacturing of amber" in the Mycenaean culture. We should rather talk about the "usage of amber". It seems that this raw material is very easy to work with. Therefore, we should be able to find a specific types of amber products as well as its production residues characteristic for the Mycenaean culture. Despite many decades of research on the history of amber in the Mycenaean culture, dating back to the time of H. Schliemann and his excavations in Mycenae, none of this have been found. In the proposed paper I will address the reasons for this surprising state of research.

The EBA Nodal Point on the Amber Road.
The Settlement Agglomeration in Mikulovice, Eastern Bohemia

Author: Dr. Ernée, Michel, Institute of archaeology, Prague, Prague, Czech Republic (Presenting author)
Co-author(s): Langová, Michaela, Institute of archaeology, Prague, Prague, Czech Republic
Keywords: Amber Road, EBA, Nodal point
Presentation Preference: Oral

The issue regarding the interregional and long-distance connections, networks, exchange, trade and mobility of people and objects in the Bronze Age has been intensively discussed throughout Europe. The newly excavated Early Bronze Age inhumation cemetery with approximately 100 graves in Mikulovice (southern Bohemia) at which 30 % of the graves contain imported "exotics" and highly valued commodities such as Baltic amber in hundreds of pieces, sea shells, gold, bronze, is positioned directly on the important long-distance route, the so-called "Amber Road". Extraordinary in the context of the EBA period is a single female grave, which contained more than 40 amber beads, seashells and gold and bronze jewelry.

In addition to an analysis of the cemetery, a hypothesis should be verified, that the analyses of skeletons and artefacts from the cemetery situated on the "Amber Road" should reflect the anticipated greater mobility, long-distance contacts and a higher living standard of the members of the local population. Without doubt, this offers an opportunity for a comprehensive study of the settlement and agglomeration along a prominent long-distance route and gives us chance to join actively the highly current discussion.

Local Responses to a Regional Aesthetic.
Production of Encrusted Ceramics in the Carpathian Basin

Author: Prof. Solker, Joanna, University of Southampton, Southampton, United Kingdom (Presenting author)
Keywords: Bronze Age, Encrusted Ceramics, White Inlay
Presentation Preference: Oral

Encrusted ceramics are a visually striking group of objects characterized by the use of white inlay. They are found in the material repertoire of several prehistoric groups throughout Europe but are particularly prevalent in the Carpathian Basin where they form an important, long-standing tradition that transends individual cultural units. However, although encrusted ceramics ostensiby 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.
The interplay between technology and geography in the development of trade networks

Author - Prof. Rivers, Ray, Imperial College London, London, United Kingdom (Presenting author)
Co-author(s) - Evans, Tim, Imperial College London, London, United Kingdom
Co-author(s) - Knappett, Carl, University of Toronto, Toronto, Canada
Keywords: geography, networks, technology

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 geography, which exploits this ability to travel longer distances. We stress that by ‘geography’ we mean not so much Cartesian 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.

As shorthand, we term the former ‘geographic’ distance and the latter ‘technological’ distance. There is a symbiosis between the two; the technological improvements that make travel more reliable and viable encourage network growth, conditioned by geography, which exploits this ability to travel longer distances. We stress that by ‘geography’ we mean not so much Cartesian separation as a reflection of the ‘ease’ of exchange between sites and that the application of “technology” (e.g. the wheel, pack-animals, sail) is conditioned by its ownership.

As time passes, improving technologies lead to a growth in technological distance. The establishment of ‘trading’ networks is necessarily constrained when technological distance is relatively small. At the other extreme, trading networks have become well established by the time that technological distance is relatively large. The tipping point between struggling and established networks arises when the distances are comparable. Technology then permits exchange over just those distances necessary for robust networks to exist and a vigorous growth in exchange occurs.

To exemplify these ideas we examine the evolution of maritime networks in the Aegean and E. Mediterranean from the Early to Late Bronze Age. The tipping point for the rapid growth of trade and exchange occurs at the transition from Middle to Late Bronze Age with the large-scale adoption of sail. This becomes clear when Minoan maritime networks are modelled in a way in which this sensitivity to ‘geographical’ distance is explicit. However, on either side of this transition point sensitivity to distance is less important and different computational approaches are required. The implication is that network dynamics in Early, Middle and Late periods has to be understood in terms of different social agency for network formation.

An earlier formulation of these ideas can be found in our paper, From Oar to Sail, published in ‘Maritime Networks: Spatial structures and time dynamics’, C. Ductruet (Editor), Routledge Studies in Transport Analysis, Routledge (London and New York), 2016.
**TH6-03 Abstract 01**

**Early farming and the transmission of ceramic traditions in the western Balkans**

**Author** - Dr. Miren Sebastián, 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 four technological innovations: farming practices, landscape use, pottery and lithics.

Farming practices diffused across Europe following two main routes, inland and maritime. The inland stream initially corresponds to the Starčevo-Körös-Criş complex across the Balkans from 6500 cal BC onwards, and then expanded across continental Europe as the Linearbandkeramik culture. The maritime stream is associated with the Impresso-complex in the Adriatic and Tyrrhenian seas, and the French Mediterranean coast, and then with the Cardial culture across the western Mediterranean Basin.

The EUFARM research area is the western Balkans where the two streams are discernible and the only one where they are present in such close geographical proximity. The project is focused on two aspects. Both inland and maritime streams involved an initial phase in their respective core areas. Did both streams follow similar trajectories? These secondary episodes of farming expansion seem to correspond to the meeting and mixing of both inland and maritime streams. How can we account for this in terms of cultural transmission?

Differences between the streams are marked in terms of pottery assemblages. Cultural transmission is the process by which information is passed from individual to individual through social learning. It is well-received to be the mechanism by excellence underwriting cultural change. It raises the question of the signal of cultural transmission in the archaeological record.

The work is performed for the project 33.1195.2014/k
The Nábáto and Zékere are two nearby rivers in the Alto Ribatejo region, in the hinterland of Central Portugal. The Nábáto is a tributary to the Tagus, and not far from their meeting point where they enter into the Tagus River. Despite their proximity, they are crossing geologically different landscapes: while the Nábáto is cutting through limestone hills, the Zékere passes through the acidic terrain of the Central Iberian Massif and ends up in the fluvial terraces of the Tagus. This diversity has been reflected in the archaeological studies of the region. The caves around Nábáto are considered as the eastern most representatives of the Neolithic group of Estremadura, a group whose roots are in the Cerdial pottery tradition. On the other hand, the open-air sites and megalithic monuments in the Zékere valley are associated with the archaeological amalgam of Alentejo and the Iberian interior, marked by the Bourbon pottery style during the Early Neolithic.

This work is reviewing the ceramic collections from two sites, one from each of the regions: Gruta do Cadaval from Nábáto and Arma 1 de Val da Laje from Zékere. The first is a burial cave, dated at the transition from early to middle Neolithic, and the later is a Cerdial dolmen, suspected of being built over more ancient remains. Through pottery characterization, an attempt is made to answer existing questions concerning stratigraphy and intra-site variability, but also regional communications and mutual influences. In addition, organic residue analysis offers a functional and social dimension to the role of pottery in the activities taking place in these two sites.

TH6-03 Abstract 05
Transforming traditions behind the gloom:
6th millennium BC pottery styles of Transdanubia
Author: - Jakucs, Jnos, Research Centre for the Humanities, Hungarian Academy of Sciences, Budapest, Hungary (Presenting author)
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Co-author(s) - Vincze, Vendlo, Independent researcher, Pils, Hungary
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Keywords: 6th millennium BC, pottery styles, Transdanubia
Presentation Preference - Oral

The transition period from the Early to the Late Neolithic of the Central Balkans is characterized by the presence of mixed ceramic assemblages on several archaeological sites. Mixed assemblages (not only pottery, but also so-called cult objects - altars and figurines), consist of the specimens typical both to the Starčevo and Vinča technological traditions. However, another very important features occur in these assemblages: hybrids and the presence of carelessly, roughly finished products. The paper focuses on social aspects of these phenomena: do they suggest mixing of people with different group identities? Do the different 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 07
Fuzzy Boundaries, Permeable Borders:
challenges in the interpretation of ceramic assemblages
Author: Silva, Teresa, Democritus University of Thrace, Thessaloniki, Greece (Presenting author)
Co-author(s) - Umem-Kotsou, D., Democritus University of Thrace, Greece
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Co-author(s) - Kotsou, S., Hellenic Ministry of Culture, Education and Religious Affairs, Greece
Keywords: Late Neolithic Greece
Presentation Preference - Oral

It is tempting to treat borders as fixed, lines drawn on a map, but to do so fails to take into account that borders are permeable. They may be crossed by people, ideas, and objects in a variety of ways as part of an ever changing social landscape. In order to interpret and respect this dynamic force in the lives of people, our ways of perceiving these borders must alter. However, we 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.

According to the analysed settlements, an abundance of spatial variations of coevally existing pottery styles has been observed both on household and intrasite levels. Facing the problem of entangled assemblages, when different pottery styles coexisted in the material of various contemporary households of the same settlement, the assemblage 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 both within the entire settlement system.

The various pottery styles that existed partially or wholly coeval in the same microregion or even within a settlement, raise several questions in terms of the categories of typochronology and in terms of pottery styles as identity markers. Although, according to the above, concepts of both stable identities and sharp boundaries should be challenged. However, we also pay attention to distinguish not only the shared aspects of the pottery range, but such particular elements that could not be noted in entangled assemblages, and so allow us to detect real entities within a Neolithic pottery tradition. Finally we attempt to answer the question if any regional rules can be set to define elements as hallmarks of the phenomenon.
TH6-03 Abstract 08
Do ut des: pottery "imports" and imitations in Romanian Neo-Eneolithic

Author - Stefan, Cristian Eduard, "Vasile Parvan" Institute of Archaeology, Bucharest, Romania (Presenting author)
Keywords - Neo-Eneolithic, pottery, Romania
Presentation Preference - Oral

Amidst all finds recovered from the archaeological record, pottery is one of the most common types. Since the beginning of professional archaeology, pottery was used to establish exchange relationships between social groups from different areas and/or to construct relative chronologies. In this presentation we try to review so-called "imports" and imitations found in archaeological record in the Romanian Neo-Eneolithic and discuss their meaning. With the help of ethnographic record we can assume the significance of "foreign" pottery in areas with different traditions as a product of exchange, exogamy or imitation. The separation between "imports" and imitations is usually very hard to identify with the naked eye, in this case archaeometrie could be a useful tool to answer the questions.

TH6-03 Abstract 09
Hybrid Societies: the vagueness of Neolithic cultures in the Balkans

Author - Dr. Naumov, Goko, Museum of Macedonia, Skopje, Macedonia (Presenting author)
Keywords - Balkans, house models, pottery
Presentation Preference - Oral

The determination of culture was a reference for the culture-historical archaeology in the Balkans and abroad, and leads many to identify particular regions with finds unearthed from Neolithic sites. This was a helpful tool for the early stage of prehistoric archaeology and contributed to the understanding of particular regional attributes common to the societies that inhabited various areas in the Balkans. However, recent research indicates that these cultural borders and material features are not so rigid and often in many cases, beyond the proposed geographical frames. The concept of culture itself is questioned and often reconsidered with the identity of site, as more evidence is available concerning the Neolithic societies, their villages, pottery, tools, images, burials and human remains.

Since the first definition of Neolithic cultures some regions were regarded as separated and isolated areas and mainly considered within modern political borders. This was a significant step towards the first definition of cultural features of these regions and as such contributed in the identification of sites into cultural groups. Hence, the reconsideration of published material, artifacts from museum stores, documentation and new excavations indicated that some geographically divided and different regions were barely 'culturally' diverse. Thus, pottery regarded as the main feature of one culture appears in another which was classified as belonging to a different cultural group.

The case-study of the Neolithic pottery in Pelagonia and its production within the agricultural communities of the Skopje valley, Lake Ohrid basin, Ovče Pole and Polog, will be presented. Late Neolithic Vinča pottery will also be considered, as some of the temper types and design features appear at earlier tell sites in Pelagonia. In addition, the anthropomorphic house models from this area will be discussed. Originally, these were attributed by archaeologists to different cultures due to their typological variations in these regions. Therefore this paper will mainly consider pottery design and human representations in order to emphasise the common Neolithic features of the isolated regions and the modes of networks which integrated shared identities of distant societies.

The issue of culture will also be discussed as it often invokes a contemporary notion of communities that inhabited particular geographical areas. Their intensive communication and common material culture goes beyond the archaeological cultural frameworks of the Balkans and as such will be emphasised for further revision.

TH6-03 Abstract 10
Modelling interaction at the peripheries: LN/EC Levant and the Halaf/Ubaid interaction spheres

Author - Gabrieli, Eva, Milano, Italy (Presenting author)
Keywords - communities of practice, interaction spheres, technological transfer
Presentation Preference - Oral

Several Late Neolithic and Early Chalcolithic Levantine assemblages (8th-6th millennium cal BC) contain pottery identified as Halaf and/or Ubaid. In most cases, these ceramics are not very similar stylistically or formally to the ‘classic’ Mesopotamian specimens, and the Levant is in fact considered to lie outside the area where Halaf and Ubaid ceramic traditions emerged. More interestingly, however, the Levant is located on the periphery of both Halaf and Ubaid horizons or interaction spheres. Here, like in other ‘peripheral’ regions, pottery is one of the few elements, if not the only, to be shared, and its higher variability, both in terms of decoration and forms, indicates the differential spread of traits over space and time. The traditional narratives mainly emphasise possible cultural or ethnic affiliations to northern Mesopotamia, but, in this paper, Levantine ‘mixed’ assemblages are rather conceived primarily as a peculiar expression of the vast Halaf and Ubaid supra-regional socio-material networks.

The uneven distribution and networking of traits assign the significance of the role played by local socio-economic conditions and cultural practices in their dissemination, even if available evidence rarely allows us to reconstruct the contexts of production and use of the Levantine Halaf- and Ubaid-related ceramics in detail. Local production, however, was deposited locally in most cases, and, since the manufacture of such pottery presupposes the use of specialised technologies of production and use of the Levantine autochthonous traditions, their spread surely involved technological transfers. Interregional contacts, thus, appear to have structured potting activities within the Levantine communities, contributing to the establishment of extended communities of practice.

Focusing on pottery manufacturing, based on old and recent data, this paper seeks to better understand the interaction dynamics implicated in the diffusion of Halaf and Ubaid traits at the boundaries of their respective interaction spheres, in order to further explore the global character and meaning of Halaf and Ubaid phenomena.

TH6-03 Abstract 11
The Comb/Narva interface in the E. Baltic: pottery form and function in the dynamic 4th mill. BC

Author - Dr. Bárócz, Valdó, University of Latvia, Riga, Latvia (Presenting author)
Keywords - eastern Baltic, hybridisation, pottery
Presentation Preference - Oral

In the 4th millennium cal. BC the eastern Baltic region experienced various striking developments that occurred more or less simultaneously and are likely to be inter-related. Thus, a wide exchange network emerged at this time, involving a coast-to-inland flow of Baltic amber, complemented by a transfer of lithic materials. At the same time, the indigenous tradition of shell-and organic-tempered ceramics, representing what is known as the ‘Narva Culture’, encountered the starkly contrasting Comb Ceramic tradition of rock-tempered, densely ornamented pottery – evidently an intrusive phenomenon that arrived from neighbouring areas to the north. 'Hybridisation' is a concept frequently employed to characterise the ceramic assemblages of this time, exhibiting mixed-temper fabrics along with decorative elements and designs that seemingly imitate Comb-Ceramic ornamentation but at the same time depart from its strict canons. Adding to the complexity, there is new evidence that pottery should also be added to the list of items circulating within the long-distance exchange network. Primarily utilising assemblages from present-day Latvia, this paper seeks to look behind the material and unravel what the encountered ceramic variety means in terms of pottery-making and pottery use.

TH6-03 Abstract 12
A Technological Study of Pottery from the Archaeological Site Gradiste-Iđoš in Serbian Banat

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Co-author(s) - Ćajić-Kosović, Maja, University of Belgrade, Vinča Institute of Nuclear Sciences, Belgrade, Serbia
Co-author(s) - Jančić-Heinemann, Radmila, University of Belgrade, Faculty of Technology and Metallurgy, Belgrade, Serbia
Co-author(s) - Kreiter, Attila, Hungarian National Museum, Budapest, Hungary
Keywords - Neolithic, pottery technology, Tiša, Vinča communities
Presentation Preference - Oral

The archaeological site of iđoš (Gradiste iđoš), situated in the south-central Hungarian plain, in the Serbian Banat region, had been occupied for over 5000 years, from Europe’s first Neolithic farmers to the Late Bronze Age period. Its scale and character have made it to be a site of great cultural importance and national heritage. The on-going archaeozoological research (BORDERLAND: ARGIE project) explores three chronological key phases of its prehistory, consequently yielding large amounts of ceramic materials. One of the main focuses of the project is to investigate social boundaries between Neolithic communities characterised by ‘Tiša’ and ‘Vinča’ style pottery.

The expansion of Tiša material culture from the core area of its development in the middle portion of River Tiša began in the period when the Vinča phenomenon was already fully developed in the northern Banat. On several sites in the Serbian Banat the evidence of mixed assemblages and the presence of hybrid vessels, exhibiting typical style of both communities, was recorded.
Very interestingly, the results of the previous archaeological research conducted on İdıb revealed that materials characterised by both “İzba” and “Vinča” styles could be found in the same contexts, for example in the house excavated in 1954 in Gradilice İdıb. Therefore, İdıb 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, thin section petrography, portable X-ray fluorescence, microtomography of ceramics 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 assemblages could be connected to different chaînes opératoires and could reflect different organisations 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 İdıb, or if they are the expression of exchange of ideas and communication among communities characterised by different material culture.

TH6-03 Abstract 13
Mixed Vinča and Tisza assemblages of the Boróka-Plain, Voivodina: Contextualisation and technology
Author: Dr. Hofmann, Robert, Kiel University, Kiel, Germany (Presenting author)
Co-author(s): J. Spataro, Michela, Institute of Archaeology, UCL, London, United Kingdom
Co-author(s): M. B. Medović, Aleksander, Museum of Voivodina, Novi Sad, Serbia
Co-author(s): M. B. Medović, Ildoš, Museum of Voivodina, Novi Sad, Serbia
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Keywords: mixed assemblages, Neolithic Voivodina, pottery analysis
Presentation Preference: Oral

During the Neolithic, due to their geographical position, Voivodina and Banat formed a contact zone between several cultural zones of the Late Neolithic Balkans and Transylvania. This is manifested, among other things, in settlement structure, architecture and material culture. In a group of sites in the Tisa valley, in the West of this area, Vinča and Tisza pottery styles occur together in the same settlements. We are studying this phenomenon at the spatial scale of two large Late Neolithic settlements and a local plain with a size of 1 km² which is situated close to the town of Novi Bečej.

To understand the socio-economic implications of this and similar phenomena, we are contextualising the artefactual material, archaeo-botanical and archaeo-zoological remains through comparisons of inventories from different households and settlements. The co-occurrence of Vinča and Tisza pottery styles in the same households is being investigated by typological, chronological and technological analyses. Geochemical and mineralogical analyses contribute to answering the questions of how pottery production in these sites was organised and how this pottery was linked technologically to the core regions of the cultural groups involved.

TH6-03 Abstract 14
Technology of Neolithic-Eneolithic ceramics in the territory of Neva-Ladoga basin (NW Russia)
Author: Dr. Kulkova, Marianna, Herzen State University, St. Petersburg, Russian Federation (Presenting author)
Co-author(s): G. Gusentsova, Tatiana, North-Western Research Institute of Cultural and Natural Heritage, St.-Petersburg, Russian Federation
Co-author(s): M. B. Kulkov, Alexander, St. Petersburg State University, St. Petersburg, Russian Federation
Keywords: Okhta 1, Podolje 1 sites, Neva-Ladoga basin, patrography, XRF, microtomography of ceramics, technology, Neolithic-Eneolithic pottery
Presentation Preference: Oral

There are unique Neolithic-Eneolithic sites in the territory of the Neva-Ladoga basin (NW Russia). The site of Okhta 1 is located at the mouth of the Okhta River in ST. Petersburg city region. The first people occupied this territory around 4200 BC. These were the first communities of the Neolithic Pri-Combed culture. Changes in the landscape and the climatic conditions around 3200-3000 BC made this area attractive again for habitation. In this period, on the coastal zone the houses, fishing constructions, areas of the Gnezdilovka Plain, the Central Balkans and Transylvania are occupied. One site is Podolje 1 which is located in the southern part of Ladoga Lake, and was occupied intermittently depending on the water levels of the lake and the Baltic Sea. Pottery belongs to different cultural traditions: Neolithic Pri-Combed culture (5000-4000 BC) and Eneolithic Tisza-Combed (tempered with feathers, shafts or asbestos, 4000-3000 BC). Investigations of the sherds in thin sections, by XRF, SEM-EDS and microtomography have allowed several ceramic groups to be identified using different technologies to be identified, and the types of raw material resources that have been used at these sites to be established. Research on ceramic has expanded our knowledge of cultural traditions and chronology of the ancient societies that occupied the Pri矮iveskaya lowland territory during 5000-3000 BC.

TH6-03 Abstract 15
Corded Ware Culture in the North-West of Russia: mix of traditions
Author: Dr. Kulkova, Marianna, Herzen State University, St. Petersburg, Russian Federation (Presenting author)
Co-author(s): J. Spataro, Michela, Institute of Archaeology, UCL, London, United Kingdom
Keywords: Corded Ware Cultures, migrations, traditions
Presentation Preference: Oral

There are a lot of settlements in the North-West Russia with Corded Ware Cultures (CWC) materials. They appear in the pile-dwelling settlements also. On the ceramic materials we could trace mix of different archaeological cultures: local and indigenous. First appearance of the CWC was observed in the middle of the III mil. BC on the pile-dwelling settlement Uvay-su IV (Pavlov region). 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, 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 assemblages could be connected to different chaînes opératoires and could reflect different organisations 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 İdıb, or if they are the expression of exchange of ideas and communication among communities characterised by different material culture.

TH6-03 Abstract 16
Making pottery on the Neolithic settlements in the north of the Sozh river basin (Eastern Belarus)
Author: T. Tchachova, Maryia, Institute of History NAS of Belarus, Minsk, Belarus (Presenting author)
Keywords: technology, Neolithic pottery, Upper Dnieper culture
Presentation Preference: Poster

This study is based on the ceramic material from the main Neolithic sites of the in the north of the Belarussian Pashocha (Eastern Belarus). The Okhta 1 and Stary Dzedzin 4. In the course of excavations multi-period materials were obtained, but Neolithic finds dominate.

The Hrona 3 settlement is situated on the first terrace of the left bank of the Sozh River. This site was discovered by V. Telykalo in 1974. In 1975 A. Kulekova 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 Rudnina 1 settlement is situated on the first terrace of the left bank of the Sozh River (Eastern Balarus). The site was discovered by V. Kopylin in 1994. In 2007-2008 A. Kolosov excavated here an area of 300 m². The presented poster discusses the results of the study of 2042 Neolithic potsherds from more than 100 vessels. The Stary Dzedzin 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 consists following three main parameters: technology, morphology and decoration. This allows a division of the pottery into several groups, which should reflect peculiarities of cultural situation in the northern Belarussian Pashocha region during the Neolithic period.

Group 1 is represented by slightly shaped vessels with slightly bent rim. Pottery of group 1 is the earliest on the settlements and is similar to pottery from the sites of Mahilo-Rahatoj (the Dnieper River basin). The clay body contains organic temper and comb impressions form dense or sparse horizontal, diagonal and vertical rows. Group 2 is represented by vessels with inverted upper part or with slightly bent rim. The vessels were tempered with organic and coarse-grained crushed stone. The dominant ornamental element is called “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. Pottery of group 3 is the latest on the settlements and is similar to pottery from the sites of Mahilo-Rahatoj (the Dnieper River basin). The clay body contains organic temper and comb impressions form dense or sparse horizontal, diagonal and vertical rows.
Vessels with diverse lives: examples of decorated pottery with a change of function

Author: Sabda, Katalin, Institute of Archaeological Sciences of the Eötvös Loránd University, Budapest, Hungary (Presenting author)
Keywords: ceramics, cultural interaction, Late Neolithic

Presentations Preference: - Poster

Sometimes typology is a last resort for the archaeologist: where the concept of (material) culture seems to fail, one frequently hopes that artifacts that look the same invariably act and react according to similar regularities, and thus may be used as a single unit, a reliable building block for interpretations. Through a couple of examples from sites with culturally mixed situations in the Late Neolithic of the Carpathian Basin I would like to show how misleading this might be, how different similar-looking vessels from diverse potters and for users in different situations could have been. The examples from the settlements of Poljčani-Cagszhalom and Pusztatafoki-Lendence 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.

Sub-Neolithic pottery from the territory of Belarusian Pabuzh

Author: Tchaikou, Aleh, Institute of History NAS of Belarus, Minsk, Belarus (Presenting author)
Keywords: ceramics, cultural interaction, Sub-Neolithic pottery

Presentation Preference: - Poster

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 Sokolškew 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.

Neman culture is represented by pottery of Lyssaja Hara and Dobry Bor types. The finds which belong to the former are not numerous. It may be remotely connected to the main area of its distribution (upper reaches of the Neman River). The Dobry Bor type pottery is much more frequent. It was found at most of the studied sites. It can be divided into two groups: the first one is represented by hybrid pottery with features of both Lyssaja Hara and Dobry Bor types. Analogies to such pottery can be found in the Upper Prypiat River basin. The second group consists of “classic” Dobry Bor pottery.

Keywords: Neolithic pottery, the Prypiat-Neman culture

Neolithic pottery from Ljubic cave (Istria, Croatia)

Author: Percan, Tina, Croatian Conservation Institute, Split, 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 Ljubicave cave is situated in southern Istria (Croatia) near the village of Marčana and only 15 kilometers east of Pula, the peninsula’s largest city. Since 2008 to 2011 archaeological excavations were carried out in cooperation between the Musee d’Anthropologie prehistorique de Monaco (Principality of Monaco) and The Croatian Conservation Institute (Croatia). Recorded findings, particularly ones from the Neolithic period, implied that the cave was intensively in use during this period. A large number of pottery fragments were nicely decorated with different motives and ornaments characteristic of the cultural phenomena from Early (Impressed culture), Middle (Danilo culture) and Late (Hvar culture) Neolithic therefore making it the period of the most intense usage of the cave. With this poster we will put the focus on the Middle Neolithic (Danilo culture) pottery and its ornaments (S shaped decoration, different spiral motifs, incrustation). Furthermore, laboratory analyses of pottery and ornaments show the significance of this multidisciplinary approach to archaeology and pottery. With these kinds of experiments, interesting results were collected. This work would not be possible without good cooperation between archaeologists and the laboratory where the analyses were held (Metriv, 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.

Keywords: technology, Neolithic pottery, the Prypiat-Neman culture
ENTANGLED MIGRATION.
THE MATERIALITY OF DIASPORA COMMUNITIES
IN THE MEDIEVAL AND EARLY MODERN WORLD

Thursday, 1 September 2016, 14:00-18:30
Faculty of History, Room 331
Author: Linea, Jette, Mosegaard Museum, Højbjerg, Denmark (Presenting author)
Co-author(s): Rosén, Christina, Stasins Historiska Museer, Gilleleje, Sweden

Keywords: Early Modern, Materiality, Migration
Presentation Preference - Regular session

Migration is a hot topic, but not a new one: Diaspora communities are well-known in the medieval and early modern past. The question is if the 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 homeland.

The session brings together three research areas: the study of migration, urban development, and the study of the formation and expression of group- and individual identity through materiality. The examples are many: The medieval Hanseatic migration was followed by refugees and economic migrants in Europe and beyond from the 16th century onwards, and the migrants were entangled in complicated networks of marriage, kinship and business relations in host- and homelands. This entanglement gives rise to series of core questions in the interpretation of the archaeological record. 1. How do we identify immigrant identities? 2. How do we assess social or other differences within the immigrant community? 3. How do we assess reactions of the host land to the immigrants? 4. How do we separate diasporic identities from those of overlapping communities cutting across ethnicity, e.g. occupation, social and economic status, age, gender and rank.

The session takes its starting point from results from the ongoing Danish-Swedish research project Urban Diaspora, that focus on Scottish, German and Dutch diaspora communities in Scandinavian cities. Urban Diaspora is based on the materiality of consumption reflected primarily in ceramics, accounts and written records, but we invite speakers to give their perspectives on immigrant identities through papers dealing with all kinds of materiality, whether rooted in hanseatic communities or in those of refugee Dutchmen, German craftsmen, Scottish traders, Portuguese merchants, Italian artists or something else in Europe and beyond.

TH6-04 Abstract 01
Ireland and its medieval diasporic communities

Author - Ó Fláinn, Russell, University of Cambridge, Heidelberg, Germany (Presenting author)
Keywords: Acculturation studies, Migration, Postcolonial theory
Presentation Preference - Oral

For a region traditionally associated in recent centuries with its emigrant diasporic communities, Ireland has had a long and complex history of external migrant communities. In fact, the main strands of the nationalist mythos formulated during the floruit of nationalistic Romanticism were constructed in the context of – and often in contradiction to – the outcomes of these episodes of migratory activity. While recourses will occasionally be made to sixteenth/seventeenth-century migratory and colonial activity, this paper will mainly compare and contrast two medieval case studies: the arrival of settlers firstly from Scandinavia and the Scandinavian Diaspora between the ninth and twelfth centuries, and secondly from the broader Anglo-Frisian world from the end of the twelfth century to the mid-fourteenth century. While each of these episodes differed from the others, in terms of scale and outcome, there were some commonalities. For example, both involved settlers from geographically disparate homelands, such as modern-day Denmark and Norway and areas of associated settlement in the case of the former, and modern-day England, France, Flanders, Wales and Scotland in the latter. Furthermore, both might be regarded as colonialism, seen here as a particular form of pre-urban 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 ossification, the carrying on of certain cultural traits from the homeland beyond their usage in that homeland, acculturation, the adoption of certain cultural traits by one group based on their contact with another, and hybridisation, the coming together of several packs of cultural traits of diverse origins to form a new cultural package. Such discussions should of course only take place having absorbed the various lessons of recent scholarship regarding the mutable nature of ethnicity, and the ability of both groups and individuals to identify themselves in several overlapping – if not conflicting – ways, and so the permutative section of the paper will discuss the evidence for the holding of multiple identities in the case studies based on different spheres of social life. Following this, the paper will close with a discussion of the utility of the application of the lessons learned from these case studies to other examples of colonial, migratory or diasporic phenomena at other points in space and time.

TH6-04 Abstract 02
Jugs and pots - beer and stew? “Hanseatic “impact on medieval and early modern Bergen (Norway)

Author - Damuth, 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 west coast of Norway was an important element in the trading network of the Hanseatic league. From the 14th to the 17th century a considerable number of Germans from various Hanseatic towns were living here, making up partly up to a quarter of the 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 habits of the persons that lived in the Hanseatic quarter of Bergen, presumable their eating and drinking habits. Are there significant traces that can be linked to the Northern German origins of these groups? Is it possible to pinpoint differences in the archaeological material that can indicate whether ethnic Norwegians or immigrants Germans lived on a particular site? What may have been possible areas of cultural contact and transfer between the different ethnic and social groups? By combining the archaeological material with historical evidence the outlines of social realities in an international trading town my emerge.

TH6-04 Abstract 03
Urban Diaspora - Entangled diaspora communities in Early Modern Scandinavia

Author - Dr. Linea, Jette, Mosegaard Museum, Odder, Denmark (Presenting author)
Keywords: Diaspora, Migration, Urbanity
Presentation Preference - Oral

The Early Modern period (c. 1450-1650) was a time of transformation in the Early Modern cities. Increasing Early modern migration into Scandinavia from the Netherlands, present Germany and the UK meant an influx of people, objects and ideas that profoundly transformed the cities, where the immigrants settled and formed diaspora communities with strong commercial and family ties to their homelands. The formation of such communities in established cities gave rise too series of reactions from the hostlands: Some meetings were peaceful: others were conflict-ridden. The migrants came with different agendas: conquerors and colonizers, traders, economic, politic and religious refugees had their own agendas and aims, each of them influencing the interaction within the communities and between the communities and the local inhabitants. And they were met with different responses ranging from official welcoming to conflict and resistance. The urban Diaspora project is an ongoing cross-disciplinary and cross-national research project on immigration into medieval and early modern Scandinavia. In the course of the project our participants has uncovered traces of migration based in archaeology, history and science. All the projects in its final phase. The aim of this paper is to present the research framework and some results of the project, concentrating on the agendas of the many immigrant groups, that settled here, and the official and unofficial responses of hostland to the pressure of the immigrants. The Urban Diaspora is funded by the Danish Council for Independent Research/Humanities.

TH6-04 Abstract 04
Migration in Early Modern Scandinavian towns. The Nya Lôdôcase town

Author - Dr. Rosén, Christina, Arkeologerna SHMM, Tölösjö, Sweden (Presenting author)
Keywords: Early Modern, Migration, Scandinavia
Presentation Preference - Oral

The town Nya Lôdôcase existed between 1473 and 1624 on the west coast of Sweden. The written sources from the town are scarce and cover only the last decades of its existence. In this paper I will discuss strategies for identifying immigrant households from the archaeological record with emphasis on how to distinguish between diaspora identities and other overlapping identities such as occupation, social and economic status.
TH6-04 Abstract 05
Early Modern Immigrants: The City of New Loddse in the Historical records

Author: PhD Larson, Daniel, University of Gothenburg, Göteborg, Sweden (Presenting author)
Keywords: Early Modern, Immigrants, New Loddse
Presentation Preference - Oral

The city of New Loddse was established in 1473 as a gateway for trade between Sweden and Western Europe. About 150 years later, in the early 1620s, the city lost its privileges, and the citizens were forced to move closer to the sea, so what is now modern-day Gothenburg. In the research project Urban Diaspora – Diaspora communities and materiality in early modern urban centers, New Loddse 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 Loddse, no written document has been found that makes it possible to identify owners of excavated plots or to study individual plots thoroughly e.g. marriage strategies, networks, and materiality. On the other hand, the discovery of a number of tax poll lists from 1599–1610 has made it possible to analyze the town in other ways. The compilation of individual data from these lists not only shows a city with a number of inhabitants of Dutch and German origin and significant socioeconomic differences, but also provides a more precise idea about the city districts: their size, population, and economic capacity, and the occupational status of their inhabitants.

TH6-04 Abstract 06
Archaeological excavations of Dutch settlements from the 16th–17th century in Elsinore, Denmark

Author: MA Appel, Liv, Museum Nordjylland, Hørsholm, Denmark (Presenting author)
Keywords: Diaspora communities, Historical archaeology, Migration
Presentation Preference - Oral

The magnificent borough of Elsinore, situated on the narrow Sound between Denmark and Sweden, is of special interest concerning the archaeology of the wealthy Dutch immigrants in the 16th–17th century. Since 1429 every ship passing through the Sound had to moor at Elsinore roads in order to pay the Sound toll taxes, and the Danish and foreign merchants made good money trading with the foreign ships. The increased Dutch immigrations following the wars in the Netherlands in 1587, coincided with a flourishing economy in Elsinore due to growth and progress for the town as the king Frederik II rebuilt the castle of Kronborg. Many well-established Dutch merchants settled at the sandy area situated between the town of Elsinore and Kronborg Castle. This new town quarter, earlier known as Sanden, i.e. the sands, got an abrupt end due to the Swedish attack in 1658.

Recent archaeological investigations in connection with extensive construction work in this area, which were until recently hidden under the former shipyard area, have revealed remnants of buildings, culture layers, latrines and wells connected to the rich 16th–17th century settlements. The fauna and the botanical remains reveal, as do the archaeological finds, that the Dutch merchants in Elsinore dined on the finest quality food and on imported tableware in faience and ceramics.

TH6-04 Abstract 07
Can an animal bone assemblage indicate a diaspora?

Author: Dr. Enghoff, Inge Sigkær, University of Copenhagen, Copenhagen OE, Denmark (Presenting author)
Keywords: Animals, Diaspora, Entangled Migration, Zooarchaeology
Presentation Preference - Oral

Analyses of archaeological animal bone assemblages sometimes provide evidence of successions and/or coexistence of different cultures. Thus, the species present and their relative frequencies at the site Gården under Sandet, Greenland (ca. AD 1000–1400) show that the Norse settlers imported European domestic mammals and partly subsisted on these, but that over time the importance of native seals increased; whereas the importance of cattle decreased. Cutmarks etc. on the bones may also provide clues; for example bi-perforated metapodia, mostly of sheep, from the Danish site Ribe (AD 725–860) indicate that bone marrow was obtained this way which seems to be an ancient tradition in Scandinavia which has been exported to England (several 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 Sølia/Vestby (AD 1290–1380) which shows that the procedure of gilling the herring is not a Dutch invention which has been exported, as indicated by written sources, but was practiced in Denmark much earlier. The interpretation of the animal bone assemblages is complicated by the fact that different classes within a single society used different species of animals.

Aspects of the animal bone material from Elsinore, Denmark (16th–17th centuries AD), analysed as part of the Urban Diaspora project, are presented with a view to establishing whether the material provides evidence of traditions of the Dutch diaspora.

TH6-04 Abstract 08
Tracing ethnicity in food consumption - the case of Nya Loddse

Author: Maltin, Emma, Bohuslän Museum, Gothenburg, Sweden (Presenting author)
Keywords: consumption, ethnicity, fish bones
Presentation Preference - Oral

The present paper deals with the question to what extent ethnic identity can be traced in the archaeological remains of food consumption. Within the research project Urban Diaspora – Diaspora communities and materiality in early modern urban centers it was asked whether it was possible to distinguish differences in consumption between plots in the town of Nya Loddse (1473–1624), Sweden. The town was situated at the Swedish west coast, and was characterized by a multietnic 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 Loddse, Sweden

Author: PhD Heimdal, Jens, National Historical Museums, Høegh, 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 Loddse, and may linked the local vigorous of Germans or Dutch origin. Traces of hop beer brewing from the late 13th century is an anomaly in an area strongly dominated by sweet gale beers as late as mid15th century. Likewise, the use of millet stands out as foreign in relation to local tradition. It represents a imported foodstuff not native to Sweden. 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: Court Culture, Ethnicity, Post-medieval Archaeology, Renaissance, Stone Tiles, Immigration
Presentation Preference - Oral

The Danish town of Aalborg from northern Jutland is known historically to have contained a number of immigrants in early modern times, mainly coming from the Netherlands. The perspective of the presentation will be to discuss the possibilities of observing signs of migration in analyzed plant material from the town.

The basic for the discussion is a number of recent archaeobotanical analyses dating from around 1400 A.D. until the late 17th century from Aalborg. The analyzed samples represent diverse archaeological contexts, ranging from 16th century garden soils or dung layers coming from a monastery and a later hospital area to different latrine samples. One latrine sample of particular note comes from a late 17th century latrine connected to the bishop’s house in the central part of the city.

TH6-04 Abstract 11
Freezing Danes and Strangers - The Tile Stove Heating in "Danish" and "Strangers" Households

Author: Assoc. Prof. Dr Atabacl, Rainier; School for Culture and Society, Høegh, Denmark (Presenting author)
Keywords: Court Culture, Ethnicity, Post-medieval Archaeology, Renaissance, Stone Tiles, Immigration
Presentation Preference - Oral

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Archaeological features clearly connected to the consumption in five town plots were selected, and special attention was given to the fish bone assemblage. The names of the plot owners are not known through written sources. It was apparent early on that there did exist interesting differences, especially regarding the distribution of species. Anatomical distribution and size were also investigated. The challenge lies, as always, in explaining the differences found. Are they due to the resident’s birthplace, social class or personal taste, only to mention a few possibilities?
This paper seeks to explore, in how far it is possible to identify common traces or differences between “Danish” and immigrant households in Aalborg and Esbjerg during the renaissance. The focus will be put on stone 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 Ştefania, Jakob, Danish Centre for Urban History, Aarhus, Denmark (Presenting author)
Keywords: Early modern, Materiality, Migration
Presentation Preference - Oral

House and home form the most important cultural element of human daily life. How we live and how we furnish our homes define who we are and how we would like the outer world to see us. Things were no different in the Danish market town Aalborg in the seventeenth century. By use of the probate records this paper aims to investigate the differences and similarities of the material culture in the homes and houses of both immigrant and Danish merchant families in Aalborg. It will be discussed if the immigrant families came with their own material culture and in doing so contributed to the making of a cultural identity.

TH6-04 Abstract 13
A newcomer’s burial: anthropomorphic graves in medieval Transylvania (12-13th c.)
Author - Dr. Istrate, Daniela Veronica, Brãvăţ, Romania (Presenting author)
Co-author(s) - Istrate, Anjel, Hieronymus archaeology, Brâvăţ, Romania
Keywords: anthropomorphic graves, medieval colonization, Transylvania
Presentation Preference - Poster

From the mid-12th century, guestsof Central Europe, generally known as Teutonic, Flanderni, 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 evolved into 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 Age) are scarce, and existing archaeological evidence is limited. However, one of the most obvious manifestations of these communities’ individuality was of funerary nature. When excavating the lower stratigraphic layers of the cemeteries used by German settlers, archaeologists often find anthropomorphic graves, i.e. dug into yellow clay by following the shape of the human body, with a niche for the head. After this burial custom had been used for nearly a century (1150-1250), it suddenly disappeared.

In recent decades archaeology has brought to light hundreds of such tombs scattered among other burials in Saxon cemeteries. Although it is clear that anthropomorphic tombs represented a specific ritual, not the rule, and that they were only used for certain members of the community and only within certain communities, some questions remain unanswered. Which was the rule? What was the meaning of this ritual within the same community? Why and when did some people prefer an anthropomorphic grave while others opted for a simple, rectangular grave pit? No satisfactory explanations have been provided to date.

Our paper/poster will introduce this problematic and will also show examples of anthropomorphic brick-laid tombs from the same area. Although their shape is related to the early settlers’ funeral customs, these graves appeared in a topographic and chronological different context. Only a few dozens of such graves dating back to the 13th century are known, always found in archaeological contexts bound to newcomers settled in local, catholic communities.

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)
Keywords: Celts, Iron Age chronology, Networks
Presentation Preference - Oral

At the 1984 conference of the AFEAF (published in 1986) I gave a short paper suggesting that if we could only get rid of the terms Hallstatt and La Tène we might write a very different narrative of the European Iron Age. At that time I was looking specifically at that time I was looking specifically at the development of separate national traditions of archaeological research; boundaries between perceived ethnic groups such as the Celts, Iberians, Veneti etc; and disciplinary divisions which separate ‘humanities’ from scientific approaches. In recent years however this paper has begun to change. New research agendas seek to break down chronological horizons, with particular attention paid to transitional periods; more nuanced understandings of cultural identity are promoting cross-border collaboration, with a focus on zones of interaction between communities traditionally viewed as monolithic and bounded; interdisciplinary research frameworks are demonstrating the benefits of integrating scientific with more traditional approaches; and increasingly collaborative projects are fostering relationships and knowledge exchange on an international scale.

This session will draw on a number of papers from the ENTRANS Project; a HERA-funded collaborative project between the Universities of Bradford (UK), Ljubljana (SLO) and Zagreb (CRO), which explores cultural identities and encounters across the Late Bronze Age and Iron Age transition in the East Alpine region—a zone of interaction and encounters between Mediterranean societies and their traditionally perceived ‘barbarian’ neighbours. We also invite papers which seek to break down chronological, geographical or disciplinary boundaries within other parts of later prehistoric Europe (broadly, the Bronze and Iron Ages).

TH6-05 Abstract 02
Bringing down the Wall or How precise independent chronologies facilitate negotiation of boundaries
Author - Dr. Hamilton, Derek, University of Glasgow, East Kilbride, United Kingdom (Presenting author)
Keywords: boundaries, chronology, Iron Age
Presentation Preference - Oral

In recent decades archaeology has brought to light hundreds of such tombs scattered among other burials in Saxon cemeteries. Although it is clear that anthropomorphic tombs represented a specific ritual, not the rule, and that they were only used for certain members of the community and only within certain communities, some questions remain unanswered. Which was the rule? What was the meaning of this ritual within the same community? Why and when did some people prefer an anthropomorphic grave while others opted for a simple, rectangular grave pit? No satisfactory explanations have been provided to date.

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TH6-05 Abstract 03
Transcending borders in later prehistoric Europe
Friday, 2 September 2016, 09:00-18:00
Faculty of Philosophy, Room 209
Author - Prof. Amit, Ian, University of Bradford, Bradford, United Kingdom (Presenting author)
Co-author(s) - Prof. Potrebica, Hrvoje, University of Zagreb, Zagreb, Croatia
Co-author(s) - Dr. Mason, Philip, Institute for the Protection of Cultural Heritage of Slovenia, Novo Mesto, Slovenia
Co-author(s) - Dr. Batzer, Lindsey, University of Bradford, Bradford, United Kingdom
Co-author(s) - Prof. Istrate, Angel, Hieronymus archaeology, Braşov, Romania
Co-author(s) - Prof. Potrebica, Hrvoje, University of Zagreb, Zagreb, Croatia
Co-author(s) - Prof. Collis, John, University of Sheffield, Sheffield, United Kingdom
Co-author(s) - Dr. Hamilton, Derek, University of Glasgow, East Kilbride, United Kingdom
Co-author(s) - Prof. Potrebica, Hrvoje, University of Zagreb, Zagreb, Croatia
Co-author(s) - Dr. Mason, Philip, Institute for the Protection of Cultural Heritage of Slovenia, Novo Mesto, Slovenia
Co-author(s) - Dr. Istrate, Daniela Veronica, Brâvăţ, Romania
Co-author(s) - Prof. Potrebica, Hrvoje, University of Zagreb, Zagreb, Croatia
Co-author(s) - Dr. Batzer, Lindsey, University of Bradford, Bradford, United Kingdom
Co-author(s) - Prof. Collis, John, University of Sheffield, Sheffield, United Kingdom
Co-author(s) - Dr. Hamilton, Derek, University of Glasgow, East Kilbride, United Kingdom
Co-author(s) - Dr. Istrate, Daniela Veronica, Brâvăţ, Romania

Later prehistoric Europe has traditionally been studied in relation to a series of boundaries. These include the bounded chronological horizons which divide Late Bronze Age and Early Iron Age communities; geographical boundaries created through the development of separate national traditions of archaeological research; boundaries between perceived ethnic groups such as the Celts, Iberians, Veneti etc; and disciplinary divisions which separate ‘humanities’ from scientific approaches. In recent years however this paper has begun to change. New research agendas seek to break down chronological horizons, with particular attention paid to transitional periods; more nuanced understandings of cultural identity are promoting cross-border collaboration, with a focus on zones of interaction between communities traditionally viewed as monolithic and bounded; interdisciplinary research frameworks are demonstrating the benefits of integrating scientific with more traditional approaches; and increasingly collaborative projects are fostering relationships and knowledge exchange on an international scale.

This session will draw on a number of papers from the ENTRANS Project; a HERA-funded collaborative project between the Universities of Bradford (UK), Ljubljana (SLO) and Zagreb (CRO), which explores cultural identities and encounters across the Late Bronze Age and Iron Age transition in the East Alpine region—a zone of interaction and encounters between Mediterranean societies and their traditionally perceived ‘barbarian’ neighbours. We also invite papers which seek to break down chronological, geographical or disciplinary boundaries within other parts of later prehistoric Europe (broadly, the Bronze and Iron Ages).
Boundaries provide an exciting and dynamic place to do archaeology, but they can also be fraught with troubles. Working across national borders often requires realignment of classificatory schemes for both cultural groups and their associated material culture. To say a site belongs to “the Iron Age” can carry very different meaning to a person in Greece or in France. Even in a space as small as Britain, “the Iron Age” can mean different things when looking at either side of the Anglo-Scottish border. Moving through geographic boundaries, problems are only exacerbated when also faced with a boundary dividing one chronological period from another.

Drawing primarily upon examples from Iron Age Britain, from both sides of the Anglo-Scottish border, from the North to the South, and across the period of Roman contact and conquest, this paper will explore how the development of precise independent chronologies enables archaeologists to negotiate the potential perils in these liminal locations, allowing us to better model and understand social change across space and through time.

TH6-05 Abstract 03
Strangers at the Feast? Elites, artefacts and exchange in the 1st millennium BC in SE Slovenia

Author - Mason, Philp, Zavod za varstvo kulturne dediščine Slovenije, Center za preventivno arheologijo, Ljubljana, Slovenia (Presenting author)

Keywords: Iron Age, Late Bronze Age, Slovenia

Presentation Preference - Oral

The paper explores the role of elite contact and competition in the LBA and EIA societies in SE Slovenia in the transmission of artefacts and technologies around the Head of the Adriatic in the 1st millennium BC in the light of recent research. Exotic material in both mortuary and settlement contexts reflects changing patterns of elite exchange in the area, balancing the importance of a N-S route between the Eastern Adriatic and the Eastern Alps on the one hand and a E-W route between North 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, constructively using a combination of 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.

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 Sapinanza 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. A marked continuity in the South-Western Plain area, while the northern pre-Alps seem to be affected by the wider Final Bronze Age settlement crisis. Finds related to the Trentino–Luco/Platten culture are found widely, showing intense supra-regional communication. At the same time, Leonardi proposed (2011) that the pre-Alps hillfort settlements were characterized by power concentration deriving from the control of boundaries. Since this phase, albeit with diverging settlement patterns, the two areas represent the Western and North-Western borders of the Palaeovenetian world.

The VI century BC marks another step in the border interaction in both areas, as significant finds with different origins are recorded in both areas. The central place of Gazzo Veronese, close to the Minio river, records the presence of Etruscan finds; a bronze double axe and 4 funerary statues, one with an inscription - it seem to record a probable presence of high status figures (magistrates?) among the Palaeovenetian community, but probably only for a brief period. Quite different is the case of the northern area where the presence of epigraphic and material culture finds suggests a marked divergent identity pattern from the previous phase, influenced by Rhetic 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 Rhetic human groups that finally succeed in acquire the cultural and political supremacy.

Both areas, in the IV century BC, appear to be strongly affected by the Celtic-Cenomani invasion that led to a profound change and reorganization of the considered archaeological landscape. Connections between the analyzed areas and the Celtic one, North of Alps, are recorded by finds since the end of V-Iv 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, Oppiano and Mantua leading to a contraction of the Palaeovenetian polity.

TH6-05 Abstract 05
Iron Age Burial Customs and Cultural Dynamics Between Eastern Alps and Southern Pannonia

Author - Prof. Potrebica, Hrvoje, University of Zagreb, Faculty of Humanities and Social Sciences, Zagreb, Croatia (Presenting author)

Co-author(s) - Kr2, Borut, Dolencik Muzej, Novo Mesto, Slovenia

Keywords: burial customs, Kaptol, Lower Carniola

Presentation Preference - Oral

The classical approach to the study of this period applied to data distinguished between thirds of 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 not entirely deny large shift of population, mobility was far greater and more intensive at the level of individuals and small groups than at the level of whole communities. Regardless of the size of mobility, it could cause significant changes in identity of individual communities. Since the link between the burial ritual and the identification of identity of cultural groups in the Early Iron Age is far too often taken for granted, we believe that the issue of identity of the Iron Age cultural groups should be analysed at the level of individual communities. A comparative analysis of contemporary and conceptually similar grave inventories discovered in different burial ritual contexts and belonging to different cultural groups show that there are different kinds of identity at the level of a community, cultural group or a wider unit. In the same time we have to pose question is that traditional hierarchal 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 incineration 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 incineration graves in pits. However, at this site, all three burial phases are present in the same location, and they reflect certain spatial complementarity, at least during the transition periods. In addition, grave good inventories clearly demonstrate great similarity of the material culture of the last graves belonging to one burial phase and the earliest graves of the following phase, regardless of the drastic difference in the grave structure. The spatial area of relation between burials and identity will be demonstrated through comparison between the Lower Carniola burial cultures and burials in the Kaptol area. The inventories of those graves show certain similarities regardless of the fact that burial ritual and local dynamics of cultural change are significantly different in these two areas.

TH6-05 Abstract 06
ArkeoGIS: a multilingual free online tool to transcend borders

Author - Dr. Bernard, Loup, Université de Strasbourg, CNRS UMR 7044, Strasbourg, France (Presenting author)

Keywords: ArkeoGIS, multilingual, open

Presentation Preference - Oral

Originally developed in the Rhine Valley in order to gather together French and German archaeological data from the Bronze Age to the Early Medieval period. ArkeoGIS now aggregates more than 60 datasets covering in excess of 50,000 objects and sites in a Europe-wide scale. Its efficiency for trans-border archaeological and paleo-environmental studies has convinced us to move from version 3 to 4: the latter will offer the possibility to add new languages and chronological systems from summer 2016 onwards. The presentation will also focus on several, now redundant, trans-border problems and explain the solutions that have been chosen by the team of archaeologists, geographers involved in the project, and the ways in which the tool can be useful for any future cross-border project.
TH6-05 Abstract 07
Crossing the borders of the La Tène “world”

Author – Dr. Danielisova, Aatiba, Institute of Archaeology CS, Prague, v.v.i., Prague 1, Czech Republic (Presenting author)
Co-author(s) – Bursk, Daniel, The City of Prague Museum, Prague, Czech Republic
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 namely in spatial distribution, characteristic coinage or pattern of long distance imports? Can the same material culture have different cultural identities, different political, economic or even ethnic entities?

We would like to offer some kind of a cultural amalgam, observable in the rare graves of the Early Latene Culture did not come in contact with the typical Hallstatt populations that buried their dead under tumuli, but rather with...
Textile Cultures of Iron Age Central and Mediterranean Europe: breaking down the boundaries

Author: Dr. Glenda, Margarita, University of Cambridge, Cambridge, United Kingdom (Presenting author)

Keywords: culture, Iron Age, textiles

Presentation Preference: Oral

Textiles represent a product whose design and use are subject to cultural patterning and as such they can be used to establish the identity of an individual or a group with respect to other individuals or groups. Worn or displayed in an emblematic way, textiles can denote variations in age, sex, rank, status or group affiliation, thereby creating and reinforcing social and cultural borders. Yet, textiles have rarely been used as archaeological indicators of cultural boundaries in later prehistoric Europe. Textiles from Central and Mediterranean Europe preserved in a mineralized form have previously 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.

Digital approaches to the presentation and analysis of Iron Age art

Author: Professor Armit, Ian, University of Bradford, Bradford, United Kingdom (Presenting author)

Co-author(s): Evans, Adrian, University of Bradford, Bradford, United Kingdom

Co-author(s): Butler, Lindsey, University of Bradford, Bradford, United Kingdom

Co-author(s): Becker, Katharina, University College Cork, Cork, Ireland

Keywords: art, digitisation, Iron Age

Presentation Preference: Oral

3D digital methods of data capture and analysis have the potential to transform the ways in which we record, display and interpret Iron Age art. One element of the ENTRANS project has been the investigation of Iron Age objects in the south-east Alpine region using a range of new technologies. This is part of a broader programme aimed at breaking down boundaries between typological/ art historical methods of analysis, and newer approaches based on concepts of object biography and materiality.

Many of the objects studied within the ENTRANS Project belong to the tradition known as situla art, classically defined as figurative repoussoir decoration applied to sheet bronze objects, such as the eponymous situlae, as well as bell-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 deposited Iron Age objects held in museum collections in Slovenia and Croatia. The aim is to illustrate the potential of specific methods in both the analytical and presentational applications of 3D imaging. The work is a collaboration between ENTRANS, the Fragmented Heritage Project and Bradford Visualisation at the University of Bradford and University College Cork.

The cremated dead: investigating cremated remains from the Late Bronze Age/Early Iron Age transition

Author: Nicholla, Rebecca, University of Bradford, Bradford, United Kingdom (Presenting author)

Co-author(s): Koon, Hannah, University of Bradford, Bradford, United Kingdom

Co-author(s): Buckberry, Jo, University of Bradford, Bradford, United Kingdom

Keywords: Cremation, ENTRANS, Results

Presentation Preference: Oral

The paper presents the results of osteological analysis of cremated bone from the Late Bronze Age and Early Iron Age funerary assemblages of Croatia and central and eastern Slovenia. This doctoral research forms part of the larger HERA-funded ENTRANS Project, examining 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 unfielded cemetery sites in modern day Slovenia, and of the large Early Iron Age cremation complex of Kapitol in northern Croatia, has offered an additional level of understanding regarding pre-Historic attitudes to the disposal of the dead.

The investigation seeks to cross boundaries, not only of geographical and chronological terms, but also in regards to methodology. Interpreations draw on both scientific and more traditional approaches as a means of enriching interpretations of funerary processes in the past.

Beyond the vessel: residue analysis and the understanding of identity in Early Iron Age Europe

Author: Bastos, Beatriz, University of Bradford, Bradford, United Kingdom (Presenting author)

Keywords: Ceramic vessels, Early Iron Age, Organic residue analysis

Presentation Preference: Oral

During the cooking or storage of foodstuffs, organic residues are deposited, absorbed and preserved within the porous walls of ceramic vessels. With advances in scientific methods, it is possible to extract those organic residues and, through analysis, identify them. Organic residue analysis has the potential to make a significant impact on our understanding of past societies, from their diet to cultural and social practices. The identification of the resources cooked and/or stored in ceramic vessels can provide important information regarding the source and nature of cultural and social changes that took place in later prehistoric Europe.

With this in mind, the study of organic residues in pottery was incorporated within the ENTRANS Project, which aims to expand our knowledge regarding the nature and impact of cultural encounters during the European Iron Age. This paper presents the results obtained from the analysis of residues of about 100 cremation burials from central and eastern Slovenia and Croatia. The principal aims of the project are to explore aspects of diet and the provenance of resources by comparing the results of residue analysis with contextual data, such as faunal and floral remains. Differences between settlement and funerary sites are considered, by identifying how the vessels were used and the specific resources they were used for.

This paper also demonstrates how organic residue analysis can show patterns of change and encounters during later prehistory.

‘Beyond the grave’ with the help of multidetector computed tomography and micro-excavations

Author: Dr. Čedlar, Matjaž, University of Ljubljana, Ljubljana, Slovenia (Presenting author)

Co-author(s): Dr. Cavalli, Fabio, Hospital University Enterprise ‘Ospedali Riuniti’, Trieste, Italy

Co-author(s): Vinazza, Manca, University of Ljubljana, Ljubljana, Slovenia

Co-author(s): Innocenti, Dario, Hospital University Enterprise ‘Ospedali Riuniti’, Trieste, Italy

Keywords: cremation burials, micro-excavations, multidetector computed tomography

Presentation Preference: Oral

The urn is the ultimate ‘burial place’ of the cremated remains of an individual. 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/or processes, the understanding of which is only partial. On the other hand we have to admit, that it is only the information that we can trace, observe and make documentation of, which we later analyse, study and eventually interpret. Therefore the research of an urn starts already with the preparation for the excavation of its grave. In our case studies that means the analysis of the sites and their surroundings. That includes lidar scanning and the analysis of its broader landscape, followed by ground truthing campaigns and geophysical prospections. That means that we have a fairly good idea of the topographical settings and the broader cultural landscape of the site. It is also the time of excavations of the graveyard when all the possible details have to be observed and documented; with modern excavation techniques and methodology as well as standardized reporting protocols the results became much more comparable, which is crucial when trying to study wider cultural phenomena, as in this case the burial rite.

However we can go further in our quest for more detailed and reliable data. An important step forward, when dealing with urn graves is the use of multidetector computed tomography individually connected with the micro-excavations of urns. Such research results in an until now unknown variety of new data, not only of the grave itself and its preparation, but also of the post-
Archaeology without borders

Open-minded access to Late Bronze Age societies in southern Carpathian Basin

Author - Loojiek, Daria, Institute of Archaeology, Zagreb, Croatia (Presenting author)
Co-author(s) - Radoš, Sinisa, Croatian Academy of Science and Arts, Zagreb, Croatia

Keywords: communities, Late Bronze Age, mortuary practice

Presentation Preference: Oral

Late Bronze Age communities in southern Carpathian basin are known through different cultural patterns/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 archaeozoologist are less biased by the existing models in archaeological literature in their interpretation. This “bottom-up” approach is based on more credible evidences which occasionally do not correspond with existing hypothetical models of past societies.

Observe the 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.

When traditions of pottery making reveal boundaries: a case study from the Upper Rhine Valley

Author - Philippe, Marie, Université de Bourgogne, UMR 6298 ArTeHiS, Strasbourg, France (Presenting author)
Co-author(s) - Rajić Šikanjić, Petra, Institute for Anthropological Research, Zagreb, Croatia

Keywords: ceramic technology, Late Bronze Age, social network

Presentation Preference: Poster

Between Vosges and Black Forest mountains, Bronze and Iron Ages (10th-8th century B.C.), modern France and Germany, the context of this study defies borders. In the Upper Rhine Valley, at the end of the Bronze Age, one can a priori hardly expect to reconstruct boundaries because of a standardisation of the material culture, and the point is more about interactions’ significance. During Late Bronze age, the cultural entity “Rhin-Suisse-France Orientale” or “RSFO” (“Rhine- Switzerland-Eastern France”) has a core on the Rhine section between Basel and Karlsruhe. Since the 9th century B.C., this cultural entity dissolves, turning gradually to the Hallstatt one. This paper aims to focus on the people who experienced this transition period, in a supposed “flow corridor”. Which communities lived there, standing out and interacting with each other? Does it match with geographical features?

According to the anthropology of techniques, ceramic shapes operate differently, 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 pottery, 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.
"DUSTY" ARCHIVES AND ARCHAEOLOGY: OLD INFORMATION – NEW PERSPECTIVES!

Friday, 2 September 2016, 09:00-16:00
Faculty of History, Room 332

Author: Heino, Neumayer, KAFU, Berlin, Germany (Presenting author)
Co-author(s): Schuster, Jan, Institut Archäologii UL, Łódź, Poland
Co-author(s): Prohaska, Péter, Archäologische Gärten SMF, Nitra, Slovakia

Presentation Preference - Regular session

Archives in public institutions and private collections contain an ever-increasing amount of untapped information on archaeological finds and findspots. Geopolitical developments in Central and East Europe as a result of the two World Wars had an enormous effect on archival holdings, often resulting in their complete destruction. However, following the fall of the "Iron Curtain", material in archives in various European states are now once again becoming accessible. Often they contain foreign language, that is German, records. Thus the declared goal of the "Kommission zu Erforschung von Sammlungen Archäologischer Funde und Unterlagen aus dem nordöstlichen Mitteleuropa (KAFU)", which was founded in 2001, is to reconstruct in international cooperation – Germany, Poland, Russia, Lithuania – the archaeological collections and documentation that was destroyed or dispersed in the Second World War, and so to render this "lost archaeology" accessible for research once more.

In the session the following topics are to be discussed within a pan-European framework: What knowledge can be gained for current research questions within archaeology, beyond the reconstruction of material from lost collections, from providing access to archival material (excavation documentation, photographs, drawings, maps), in particular from the 19th and the first half of the 20th century?

What are effective and promising strategies for the preparation of archival holdings, even when only fragmentarily preserved, in order to extract the maximum possible information?

How can studies of archival material progress beyond mere typo-chronological description of objects and lay the foundation for up-to-date research projects?

How does the way in which archaeologically relevant archival holdings are dealt with vary across Europe? Are there methodological differences?

The session shall provide a forum for contemporary, interdisciplinary and theoretical research approaches towards archival studies. Specific topics are welcome to span all archaeological ideas, regions and periods.

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 Archäologie, 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 zu Erforschung von Sammlungen Archäologischer Funde und Unterlagen aus dem nordöstlichen Mitteleuropa (KAFU)" had been founded in Berlin. The members, scientists from polsh, Lithuanian, Russian and German universities, museums and archaeological services, wanted to reconstruct the former collections by the study of the archive material and objects which survived the war.

Chief of the commission is the director of the Museum für Vor- und Frühgeschichte Berlin. The secretariat of the commission is also domiciled at that Museum. The Stiftung Preussischer Kulturbesitz and the Römisch-Germanische Kommission in Frankfurt are supporting the commission. Every two years a congress is organized by the KAFU where young scientists are given an opportunity to present their research concerning the themes of the KAFU.

TH6-06 Abstract 02
The Sources of the „Archival Archeology“ in the Carpathian Basin
Author: Dr. Prohaska, Péter, Archeological Institute of the Slovakian Academy, Nitra, Slovakia (Presenting author)
Keywords: Archival Archeology, Archives, Carpathian Basin

Presentation Preference - Oral

The Carpathian Basin is as a venue for people from the prehistory. A multifarious archeological material is characteristical for it. The Carpathian Basin is an important territory of the archeological research in Europe. But about a large part of the artifacts and sites are not enough data available. Although the archeological research in the Carpathian Basin has nearly two hundred years of history, but since centuries come throwaways, hoards, graves and artifacts to light. About these data are in official files, which are in the archives. From the 19. centuries amateur archeologists conduct research and they correspond 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 „archeology archeology“ play an increasing role in the international research. Its meaning is in gathering and publishing of all the written sources, locating these sources, mentioning the archeological finds and sites. With the help of these written sources and reports it is possible to enlance and precise the knowledge about older sites, archaeological contexts and to reconstruct the finding entities. These records are unknown, unprocessed and unpublished. With help of some examples I would like to present the potential of the „Archival Archeology“ for the today research.

TH6-06 Abstract 03
Reichs-Limeskommission and WHS Upper German-Raetian Limes – Sources and research from the archives
Author: Dr. Hüsssen, Claus-Michael, German Archaeological Institute, Frankfurt / M., Germany (Presenting author)
Keywords: cultural heritage management, Reichs-Limeskommission, Upper German-Raetian Limes

Presentation Preference - Oral

The “Limesarchiv” of the Romano-Germanic Commission (RGK) include large parts of the archive and the collections of the Reichs-Limeskommission (RLK). The RLK explored the Limes mainly from 1892 to 1902 between the Rhine and the Danube. The scientific results were edited by E. Fabricius in the series “Der Obergermanisch-Raetische Limes der Romanenrheins” (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 small stock of real administrative records, which was 1991 archived. By far the greater parts are collection items of reports, diaries, correspondence, maps, plans and photos between 1888 and 1939. The stock is supplemented by the card file for the Fundindex of ORL, reports in words and pictures about Limes inspections in the 1950s and 1960s and others. 2005 the Upper German-Raetian Limes became UNESCO World Heritage. Since then there is an increased interest in historical documents about this monument. The total inventory of the archives was already recorded in 2004, funded by the State of Baden-Wurttemberg. The documents for the Bavarian Limes section were registered and digitized 2009/2010 with special funds from the Free State.

The Deutsche Limeskommission (DLK) promotes workups of old excavations and research on the Limes by doctoral scholarships for some years now. Thus, the Limes archive now serves as an information and data source for master and doctoral theses, for contemporary historical studies, for articles and databases on special topics, issues related to the preservation of the monument, for different types of visitor information and advice on World Heritage and for exhibitions in museums. Moreover, new questions arise by connecting the results of modern prospecting methods with the early field observations. Two research excavations at the Raetian wall were devoted to these issues in 2015.

TH6-06 Abstract 04
Scientific Archive of IHMC RAS: pages of European archaeology
Author: PhD Medvedeva, Maria, Institute for the History of Material Culture, Russian Academy of Sciences, St.-Petersburg, Russian Federation (Presenting author)
Keywords: documents, photographs, Institute for the History of Material Culture, Scientific Archive, archaeology

Presentation Preference - Oral

The Scientific Archive of the Institute for the History of Material Culture, Russian Academy of Sciences (IHM RAS), keeps invaluable documentary archeological Collections. Its history started from 1859, when the Imperial Archaeological Commission (IAC) was established by Russian Emperor Alexander II. By the early 20th century IAC became coordination and control centre in archaeological and restoration studies of Russian Empire. IAC has accumulated unique archives of records groups and
In the National Museum in Poznan, Gotuchoř branch, two ancient jars of clearly oriental origin can be found. Neither the provenance, nor the chronology of the artefacts is clear. This paper is willing to show that through archival, archaeometrical and typological studies it is possible not only to determine the specific origin and detailed chronology of the vessels, but also to reconstruct an important part of their cultural biographies. The studies of the private correspondence from the end of the 19th century between Izabela Działyńska, née Czarnecka, the buyer, and Alfred Louis Delattre, a French missionary and archaeologist working in Cartage, are revealing the context of acquisition of the artefacts. The archival holdings are clearly showing that the oriental art collection in Gotuchoř 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 (XRF spectroscopy and petrographic analyses) in order to get the basic information about their technology and place of production. Having in this mind, 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 Gotuchoř where they have been exposed as unrecognized items. So the promising results of this small-scale investigation encourage the authors of this proposal to apply for a bigger research project based on the pottery and archival holdings from the former collection of Izabela Działyńska.

TH6-06 Abstract 07

Architecture of tumuli in Kosovo

Author - Dr. Ass. Baraliu, Sedat, Faculty of education, Prishtina, Kosova (Presenting author)
Co-author(s) - Alaj, Premtim, Institute of archaeology, Prishtina, Kosova
Keywords: Grave, Kosovo, Tumuli

Presentation Preference - Oral

In this study will be treated the architecture of tumul and relation with funeral ritual. Characteristic of tumuli in Kosovo, especially during the Iron Age when their number has increased, is building variety. There are even cases when in one necropolis are noticed various types of tumuli. Tumuli in the territory of Kosovo are built with stones and soil; however, there are cases when the tumuli are built only with stones, while the soil is used as an additional element. Moreover, when the tumuli are built with soil, the stones have served for building architectural parts, such as: surrounding ring, grave constructions, cover and tumulus caim.

The forms of grave construction are not the same in all necropole. 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 funerary ceremonies starting by building the tumulus, opening the grave and the burial process. Furthermore, even in the cases of cremation are followed a range of rituals and ceremonies.

TH6-06 Abstract 08

The Prussia-Museum in Königsberg/Ostpreußen. New archaeological research on an old archive

Author - Dr. Elsbruch, Heidemarie, Museum für Vor- und Frühgeschichte, Berlin, Germany (Presenting author)
Co-author(s) - Dr. Eilbracht, Heidemarie, Museum für Vor- und Frühgeschichte, Berlin, Germany (Presenting author)
Keywords: pre-war archive, reconstruction of the archaeological landscape, research in former East Prussia

Presentation Preference - Oral

Up to World War II the famous Prussia-Museum in Königsberg kept a comprehensive archaeological fund which had been brought together during more than 150 years of research from the end of the 18th centuries onwards. The fund included findings from excavations as well as documentary record covering the entire region of the former province of East Prussia. After the war, almost all collections were regarded as being lost but big parts have been rediscovered unexpectedly after the turnaround of 1989/1990 in Berlin, in Kaliningrad and in other places. The materials that remained are mainly fragmented and incomplete but still bear witness of the intenseness of the pre-war archaeological research as well as of the richness and diversity of the historical landscape in the south-western Baltic region. Since 2012 the “Academy of science and literature in 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 Schwerin and the Museum of Prehistory and Early History in Berlin. The project aims at supporting contemporary archaeological research by making the old data available once again. The paper introduces the goals of the project and describes the specific needs, selected methods and first results of this process: How and to what extent can we reconstruct the ‘archaeological landscape’ in former East Prussia before 1945 and thus create a basis for modern investigations and research in this part of Europe?
Archaeology without borders

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 littoral in the roman period. During his PhD work he created a huge card index containing drawings and descriptions of finds from the former Eastern Prussia. These files are kept now in Archäologisches Landesmuseum in Schleswig. In the archives there are information about artifacts from Prussia Museum in Königsberg, which were destroyed or dispersed during World War II. The paper presents materials from sites of the Przeworsk and Wielbark cultures in the area east of the lower Vistula.
The cemetery of Wiskiauten is located at the south-western corner of the Curonian Lagoon, close to Kelenograd in the Russian Oblast Kaliningrad. Immediately north of Wiskiauten lies a small forest known as Kaup, where a large burial site with Scandinavian grave goods was found. The burial site may have originally consisted of up to 500 burials. Unfortunately, it is difficult to reconstruct the original layout and structure of the cemetery due to the lack of excavation documentation. As a part of the former Prussian state, the area around Wiskiauten has faced profound changes between German, Soviet and Russian rule and administration. These circumstances have led to the loss of a large part of the early research documentation and most of the finds, especially during the 2nd World War and the resulting destruction and plundering of the Prussian Museum in Kaliningrad. After the War large parts of the documentation and a small number of artefacts reappeared in different parts of Europe. Consequently, today material from Wiskiauten can be found in Stockholm, Olstyn, Berlin, Marburg, Schleswig, and of course Kaliningrad. These complex conditions could explain why a complete presentation of the research results has never been published, although archeological interest in the site is unbowed. Since the 1870s, at least 12 different excavation teams from Germany, Sweden and Russia have worked on the grave mounds of Wiskiauten and the archeological investigation is still ongoing under Russian guidance. Thus it is the aim to give a complete presentation of the research results available from all accessible excavations in Wiskiauten, and to reassess the conclusions from the early days of archaeological research. Moreover, it is essential to compare the grave architecture and the material culture of the burials in order to connect them to local Scandinavian customs, as well as to similar sites 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.

The extensive working papers of Friedrich Lisch (1801-1883) on the late Roman Iron Age inhumation graves from Häven, Ludwigslust-Parchim District in western Mecklenburg, which are archived in Wiligrad Castle north of Schwerin, provide a very interesting insight into the lively scientific exchange between Lisch and leading Scandinavian archaeologists such as Conrad Engelhard, Christian Friedrich Herbst, Hans Hildebrand, Jere Jacob Armasuens 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-German 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-shape 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 Häven was in fact a staging post between these two centres.

The guide of director of Königsberg’s Museum Bezenberger

Author: Dr. Khomiakova, Olga, IA RAS, Moscow, Russian Federation (Presenting author)
Keywords: collection, archive data, Prussian Cultural Heritage Foundation Archive, State Historical Museum
Presentation Preference - Poster

In holdings of State Historical Museum in Moscow an old plate with archaeological finds resides. It defined as «Archaeological collection from Etruscan graves of Italy, from different places of Germany and East Prussia» (Accession number 97174, List 1133/XXVIII), and consist of 27 items (a strands of beads and stand-alone beads). According to register and information at the plate, written in old Russian orthography, the collection came in to the Museum not as the result of II World War, but before 1898. The right side of the plate contains two strands of beads from Livland and «Etruscan graves». Most interesting are names of places of finds from the left side: Reussen, Dobingen, Lützen, Trauslaut, Kalberg bei Rantau, Waren, Prömeln, Grabieten, Daumen, Eschenort, that are correlate to the names of graveyards from East Prussia, that were excavated in second half and the end of 19th century. 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. Virie, 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:

International cooperation of archives in the study of archeology of the Bashkir Urals

Author: Shuleeva, Ia, Ufa, Russian Federation (Presenting author)
Keywords: archives, international cooperation
Presentation Preference: Poster

The issue of fragmentation and disparity of archaeological documents stored in the archives of the Republic of Bashkortostan was raised in the beginning of the 1990s. Data restoration about archeological monuments and finds of the Bashkir Urals was made possible owing to international cooperation. Materials about the region’s archeology were stored in the archives of the former Soviet Union (the archives of the Republic of Kyrgyzstan), the archives of Finland (the National Library of Finland / Helsinki University Library), Sweden (The Swedish National Heritage Board / The Antiquarian-Topographical Archive) and Great Britain (Cambridge University Library: Manuscripts). Archival information about the territory of the Bashkir Urals began to be collected in 1834, on the basis of the Regional Static Committee, since 1867 it became the Provincial Museum (at present - the National Museum of the Republic of Bashkortostan). Ufa provincial archives (now the Central Historical Archives of the Republic of Bashkortostan) started to be formed in 1919. After formation of the Academy of Sciences in 1932, a scientific archive of Ufa Scientific Center of RAS started operating. Such diversity of the archives led to fragmentation of archaeological materials and sometimes even to their loss. Reorganisation of the archives and document funds often results in loss of archaeological documents. Part of the archival archaeological materials was separated depending on the scientists’ workplace location, often there were no conditions for heritage storage. In Bashkhir Urals it is especially vividly observed in the scattered archival materials by K.V. Salnikov, A.P. Shokurov and R.G. Kuzeev. Also, scientists’ manuscripts can be transferred to some organizations after their death, which also leads to partial loss of the material, for instance, again, the long-suffering R.G. Kuzeev’s fund. If the World War II became the most destructive for the archival funds in some regions of the USSR, other processes can be observed in the rest of the country. The processes of mass loss of archival materials are related to revolutionary events and the Civil War. Active passion for archeology of the most educated part of society spread in the Ural region, led to the exchange of archaeological information with the European scientific elite. In the fund by E.H. Minns (Cambridge University Library: Manuscripts) a fragment of correspondence between A. Palikova, the owner of Volvarinsky plants (05.09.1913), and E.H. Minns was discovered. Another significant impact on the preservation of archival archaeological sources was the period of the late 1930s - the period of repressions, during which not only the held diaries were destroyed, but also the correspondence of repressed archaeologists. It is wrong to claim that archaeologists in the USSR completely stopped communicating with foreign colleagues and were not interested in foreign publications and foreign archival funds. But this scientific communication was of “shaded” and secret character. It is impossible to restore the disturbed dialogue of Russian and West-European archaeologists without the employees of archives and funds of European countries. Thus, the restoration of the lost archived information is possible only through international cooperation.
Cultural resilience and adaptation at the frontier: Klaipėda and Žardė pottery analysis

TH6-07 Abstract 01

Author - PhD student Ubiš, Edvinas, Klaipėda University, Klaipėda, Lithuania (Presenting author)
Keywords: frontiers, medieval archaeology, pottery

This presentation focuses on pottery, which were found in two nearby settlements: a) Klaipėda (Memel) castle and town; b) Žardė. These settlements are about 8 kilometers from each other. The first one represents Baltic crusaders and the second one local community. Klaipėda was found at year 1232. 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 identify pottery groups, which in process of interactions between local and crusader communities were imported and possibly came from one to another site. The analysis showed that locally used so called “German” style greyware pottery, but there were not found to the newcomers. This pottery is a tableware (for example proto stoneeware). On the other hand, only small number of local tradition pottery were found in Klaipėda castle and nearby town cultural layers. The author calls into question the possibility to interpret such artifacts as markers of interaction, adaptation, resilience or assimilation processes in two culturally different communities.

TH6-08 Abstract 01

The Hydrosocial Margin: Settlement, Socio-ecology and Sustenance in the Central Asian Desert-Deltas

Author - Dr. Markofsky, Steven, Universitat Pompeu Fabra, Barcelona, Spain (Presenting author)
Keywords: Central Asia, hydrolgy, landscape archaeology

This paper will explore, via a multi-proxy approach that integrates geoarchaeology, remote sensing and survey data, new hydro-social dynamics. These may include remote sensing, bio/geoarchaeology, simulation or papers that emphasize the social aspect of hydrology, including ethnoarchaeology or research that considers water as heritage in Central Asia. We feel that this creative approach to water research in Central Asia will be beneficial to regional researchers and to a wider audience seeking to broaden the scope of hydro-social research in Central Asia more generally.

TH6-07

FORUM MEDIEVAL ARCHAEOLOGY IN EUROPE AND LITHUANIA

Friday, 2 September 2016, 09:00-16:00
Faculty of Philology, Room 115
Author - Ty, Dries, Vrije Universiteit Brussel, Brussels, Belgium (Presenting author)
Co-author(s) - Fostey, Salli, University of Stirling, Stirling, United Kingdom
Co-author(s) - Hansen, Gitte, University of Bergen, Bergen, Norway
Co-author(s) - Predovinik, Katarina, University of Ljubljana, Ljubljana, Slovenia
Keywords: Europe, Lithuania, Medieval Archaeology
Presentation Preference - Committee / Working Party meeting

The Forum of MERC (Medieval Europe Research Committee) is an annual meeting held at EAA to promote active archaeological research in the medieval period (AD400–1600) in every country in Europe. It is the intellectual successor to the series entitled Medieval Europe, inaugurated at York in 1992, and staged at Bruges in 1997, Basel in 2002 and Paris in 2007. A change of direction occurred in 2012 when new thinking suggested that medieval archaeology would develop more powerfully within the broader ambit of prehistoric and historic archaeology as a whole. Accordingly the representatives of the conference accepted an invitation from EAA to merge the two conferences. This duty occurred at Helsinki and has continued since then. The medieval agenda is promoted by MERC, which views itself as in academic partnership with EAA. The purpose of the forum is to:

• highlight the performance of medieval archaeology in the host country
• highlight the medieval and medieval-related sessions at the conference

The discussions aim to contain medieval archaeologists working in the academic, government and commercial sectors and to encourage students to research the period by attending the EAA conference and our Forum. In addition to invited speakers and speakers from the floor, the Round Table will be hosted by Dr. Dries Ty, Dr. Gitte Hansen, Dr. Salli Foster and Dr. Katarina Predovinik.

Keynote Speakers:

• Lithuanian medieval archaeology, Prof. Kuncencikis, Albinas (Vilnius University, Lithuania)
• Early medieval horse cemeteries of Prussia and Central Lithuania on a comparative scale, Dr. Shirouzho, Roman (University of Tampere, Finland)
• Cultural resilience and adaptation at the frontier: Klaipėda and Žardė pottery analysis, PhD student Ubiš, Edvinas (Klaipėda University, Lithuania)
• Future archaeologies of the “Great Wilderness”; Crusading, depopulation and colonisation in the frontiers of Lithuania, Dr. Pluskowksi, Aleks (University of Reading, United Kingdom)

TH6-08

RESOURCE: CONDUIT; AGENT; WATER AND THE DEVELOPMENT OF THE HUMAN GEOGRAPHY OF CENTRAL ASIA

Thursday, 1 September 2016, 09:00-11:00
Faculty of Philology, Room A2
Author - Markofsky, Steven, Universitat Pompeu Fabra, Barcelona, Spain (Presenting author)
Co-author(s) - Holguin, Leah, University of Southampton, Southampton, United Kingdom
Keywords: Central Asia, hydrosocial dynamics, water
Presentation Preference - Regular session

Since the end of the Cold War, Central Asia has seen a burgeoning of research agendas, many addressing hydrosocial dynamics. The environmental and geographical challenges of the region, where vast desert regions and semi-arid steppe environments have been subjected to extensive agro-economic and pastoral pressures, have focused international attention on the fragile but essential balance between societies and water resources.

Somewhat lost in the drive to understand these relationships is the context of modern-day concerns such as climate change, sustainability and resource management. A grasp of the historical trajectories of these human/water relationships, not only with respect to the better-studied river systems and delta environments, but also with respect to smaller or less accessible water resources such as pools, ephemeral lakes or aquifers. In Central Asia, a region characterized historically by movement, exchange and communication across vast desert regions, the indispensable role of such varied hydrological features becomes increasingly clear: not simply as static resources, but as natural agents in the facilitation of movement and interaction. Even today, the identification, exploitation and management of these varied resources remains central to understanding marginalized, subsistence strategies, and their co-evolutionary role in water landscapes of human geography.

This session aims to broaden our understanding of water as resource, conduit and agent in the development of societies and landscapes across Central Asia. We welcome papers that present new theoretical and methodological approaches to understanding hydro-social dynamics. These may include remote sensing, bio/geoarchaeology, simulation or papers that emphasize the social aspect of hydrology, including ethnoarchaeology or research that considers water as heritage in Central Asia. We feel that this creative approach to water research in Central Asia will be beneficial to regional researchers and to a wider audience seeking to broaden the scope of hydro-social research in Central Asia more generally.

TH6-07
Archaeology traditionally views social progression as a linear trajectory, where hunting and gathering and nomadic pastoralism are stepping stones to sedentary lifestyles and agriculture. The Mongolian Neolithic (3000-2000 B.C.E.) contradicts this dominant narrative, especially in the South Gobi Desert where there is evidence of sedentary communities who utilized stone tools, mortars, and pestles. Some researchers argue these were hunter-gatherers foraging in the area. At some point during the Bronze Age (3500-2000 B.C.E.), nomadic pastoralism was adopted as the dominant subsistence strategy and these sedentary communities were abandoned. This unexpected reversal may have been related to profound environmental changes occurring at this time and further examining this may help us to understand how human societies adapt to changing levels of uncertainty about resource availability. This will be examined through the changing Holocene landscape dynamics across the Ulaan Nuur paleo lake and paleo hydrological system located in the Gobi Desert of Omnogovi province, Mongolia. By examining this Holocene socio-ecological landscape, it may provide clues to how the changing hydrological system may have influenced resource availability, which in turn, may have affected local subsistence strategy choices.

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**TH6-08 Abstract 05**

**The archaeology of water management in context of west Khorasan, Tapeh Damghani, Sabzevar city**

Author: Garazhian, Omar, Neyshabour, Iran (Presenting author)

Keywords: Bronze Age excavation, northeastern Iran water resources

Presentation Preference: Oral

Located on the edge of an alluvial fan near Sabzevar city in Iran, Tapeh Damghani is an archaeological site containing late Chalcolithic and early Bronze Age evidence. The surveyed site is 100 hectares, and excavations were conducted on the 6-hectare core of the site, at the end of the slope towards the Kal Shut river. The excavation was conducted over two seasons. During the second season, the excavation concentrated on four workshops. The northern ones, workshop II and III, revealed a series of brick walls. These walls were buried under two meters of natural deposits caused by floods from the 2nd millennium BC, leading to excellent preservation. The context and architectural construction suggest that these walls are the remains of water resource management structures: preliminary dams for controlling river flooding, obtaining surface water, and redirecting water to channels.

This research will examine evidence from Workshop II and III of Tapeh Damghani in the context of site location, landscape and environment that may 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.

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**TH6-08 Abstract 06**

**The spread of fruits along the Silk Road**

Author: Dr. Spengler, Robert, Washington University in St. Louis, Lancaster, United States of America (Presenting author)

Co-author(s): Dr. Fraicelli, Michael, Washington University in St. Louis, Lancaster, United States of America

Keywords: Agricultural Spread, Archaeobotany, Silk Road

Presentation Preference: Oral

The Great Silk Road was the largest commerce network of the ancient world; it linked the disparate ends of the vast Eurasian supercontinent and in doing so connected the imperial centers of East and southwest Asia. While organized trade, including military outputs 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 Taishuburan archaeological site (ca. A.D. 900–1200) is illustrating the importance of many of these crops in Central Asia during the height of Silk Road exchange, during and shortly after the Tang Dynasty (A.D. 618–907). The site was occupied by people in the Karashkhan-Khatana (A.D. 840–1312) 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 route 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: Grasso, Francesca, University of the Basque Country, Vitoria-Gasteiz, Spain (Presenting author)
Co-author(s): Greil, Enrico, Ludwig Maximilian Universität, München, Germany

Keywords: artifacts and community, domestic contexts, social complexity

Presentation Preference: Regular session

The main objective of this session is the study of Social and gender complexity through the archaeological remains in home housing, using a comparative approach on the basis of archaeological data.

The main focus will be on household artifacts in domestic context (presented in categories of pottery, glass, metal, wood). We can assume that the typology of household artifact had a direct relationship with social framework of communities and with the formation and the existence of local powers. The archaeological research on ancient communities have recently increased in Europe in terms of quantity and quality, and some studies have attempted to connect all these types of artifacts founded into domestic context, producing some excellent summarising results for individual sites or local territorial contexts.

Particularly we would compare how the relations between domestic artifact had been interpreted in the key of reconstruct the complexity of ancients societies, the formation of elites and their recognisability, in a terms of broad range of chronology and geography too. The session will explore the potentiality and the limits of our records and our approaches to face social and gender inequality in ancients communities, trying to suggest general considerations that can be useful for the study of many spaces and chronologies.

TH6-09 Abstract 01

Studies on remains of daily activities from the LBK Neolithic settlement

Author: Michalska, Katarzyna, University of Gdańsk, Gdańsk, Poland (Presenting author)
Co-author(s): Potęgowska, Łukasz, University of Gdańsk, Gdańsk, Poland

Keywords: activity zones, processing of food, social relations

Presentation Preference: Oral

This paper focuses on aspects of identification of activity zones around LBK longhouses discovered at the multi-phase Neolithic settlements in southern Poland.

Studies on the spatial and functional diversity of features located around the longhouses as well as quality (a state of preservation) and quantity of artifacts found there (pottery, finds, fragments of stone tools and grain remains) allow us to distinguish two main types of activity zones interpreted as possible places of household activities and intense deposition of waste, and places associated with processing and/or storing of food. Indication of these domestic/kitchen zones that have been used to daily activities and have been probably shared by inhabitants of contemporary houses enable deeper insight into social patterns and complexity of social relations. The recognition of domestic area related to processing of food seems to be also especially important to further studies on gender relations.

Another aspect of the study is to emphasise a possible limitation of recognition of activity zones because of long-term depositional process and the overlapping of various activity zones that can be problematic during analysis of the domestic artfacts recorded at the multi-phase settlements.

TH6-09 Abstract 02

Tell me who is living here... Some considerations on people living in Concise, a Swiss Neolithic site

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Keywords: lake dwelling, Neolithic, session, tasks sharing

Presentation Preference: Oral

Studies of the Middle Neolithic lake dwelling of Concise (Switzerland) are expanding year by year, with more fine assumptions about the spatial structures of the villages, the identity of the actors of the material culture, the history of the populations... The architecture of some villages is known as well as the material culture which contains in some cases a mixture of components from Franche-Comté and the Swiss Plateau Cortalloid. The spatial distribution of remains between activity areas common to several houses and domestic waste in each house shows an essentially domestic economy, but there are also synergies by groups of houses for some components. The analysis of these distributions has led us to propose a gendered tasks sharing. In this general atmosphere of domestic subsistence, two buildings appear to have a particular function.

TH6-09 Abstract 03

Traces of households, activity areas and social inequality in a Late Copper Age site in Hungary

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Keywords: activity areas, household unit, social inequality

Presentation Preference: Oral

The archaeological traces of households and household units as the scenes of community interaction form an important interpretative level, determining numerous characteristics of the life and material culture of the community. My research is based on the premise that the archaeological identification of households and activity areas is possible, since the basic activities of everyday life were carried out in a delimited area and within a delimited timeframe. In my work I made an attempt to define the spatial and temporal limits of households and to determine the remains of which activities within a household have been preserved. The interpretation and comparison of these hypothetical households as units and scene of social and gender inequality was carried out from a variety of standpoints: among others from that of consumption, specialization and diversity. The starting point of the research is provided by the finds and observations on settlement structure made during the excavations at a Copper Age site. The study of the site is complemented by natural scientific – archaeologicalological, anthropological, petrographic, geochemical, and radiocarbon dating - analyses, and environmental archaeological data from the region Transdanubia in Hungary. The proceeding of the finds was followed by the detailed qualitative and quantitative analysis of the materials of the pits and the pits themselves (correspondence analysis, one-way correlation analysis) according to the observed groupings. With the help of the spatial statistical and GIS analysis of the finds, the mapping of the distribution of the finds enabled the quantitative and qualitative study of the various classes of finds, which could help us to shed light on the distribution of activities and traces of social inequality taking place within and outside the households.

TH6-09 Abstract 04

Culture and society of a Hellenistic site: houses and artefacts of Sicilian city of FINZIADe

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Keywords: Hellenistic world, houses, Sicily

Presentation Preference: Oral

The contribution is about housing of the Hellenistic-Roman period of Finziade, in the province of Agrigento, on the southern coast of Sicily.

There are 12 houses systematically excavated by the University of Messina between 2003 and 2014 that constitute a privileged vantage point for understanding the socio-cultural and economic dynamics of Sicily between the III-IV centuries B.C.

The houses are in fact one of the rare cases of recent stratigraphic studies of residential complexes of Sicily and also, not recording a settlement continuity in imperial times, have no relevant accretions after periods.

The well-preserved houses, in fact, allowed to identify the intended use of the spaces and thus enable to carry out an analysis of a very large sample relative to the daily life of a center of Hellenistic-Roman Sicily, perfectly integrated with Mediterranean examples of the period in southern Italy, Sicily, Greece, and in the coasts of Africa and Asia Minor.

All houses have a square plan with a central courtyard that represented the center of domestic life and was equipped with tank for collecting rainwater. Around it revolved every room of the house, including the dining rooms, bedrooms, bathrooms and kitchens.

Themes will therefore be treated associated with daily life, especially in relation to material culture. Some kitchens, for example, are well accessorized with hobs, tables and docks as well as the functional ceramic sets to the preparation, the service and food consumption. The most important rooms of the houses have also returned the wall decorations and floor of great value, which are an indicator of the medium-high socio-economic conditions of the owners.

Particular attention will be devoted to domestic cults, in fact every house possessed an environment characterized by the presence of an altar complete with artefacts relevant to the performance of rituals, demonstrating a particularly common practice
Women to the front! Women to the front?

Keywords: women, gender, women in war

TH6-09 Abstract 05

Women to the front! Women to the front?

Author - Bauer, Anna, Wien, Austria (Presenting author)

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 women had no access to political or social power so the stereotyped of the peaceful woman was founded. If a woman fought she had still to fulfill the stereotyped of womankind. Men were shocked when they found out that they have fought against women. The reasons why a woman joined war are various: poverty, a bad childhood, desire for adventures or a problem with their natural gender. With the beginning 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 were left alone with their troubles and trauma.

An indirect reason why a young woman might have joined the army could be found in the higher waged for female babies. In the early Middle Ages 2400 solidi were paid for a baby girl and 600 solidi for a baby boy from this forced marriage can be deviated their troubles and trauma.

The gap for the weapon must have been for some women or girls the exit from a forced marriage.

Anthracology 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)

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Keywords: Anthropology, Fuel, Iron metallurgy

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 IIIrd c. B.C. and the beginning of the Ist 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 Pyrenees, archaeological and anthracological researches allowed to realize first synthesis on the relation between charcoal burning and metallurgy, but mostly for the modern period. However, anthracological 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 rejets from iron ore extraction, dated from the Vth to the Xth 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 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 (Quercus semprevirens, Erica, Laguminoseae) might have been related to anthropic activities (pastoralism?)

All the anthracological spectra dominated by the deciduous oak forest and the big caliber of the charcoal identified raise the question of the relation between charcoal burning and iron metallurgy. Furthermore, one of the four sites revealed a broader diversity and the use of smaller calibers, suggesting the use of the charcoal for the roasting of the iron ore and not for its reduction. At last, some of the charcoals show signs of tool marks, testifying of the cutting process. In order to better understand the impact of metallurgical activities on landscapes, future studies
will continue to focus on sites occupied for large amount of time. By studying the tools marks on archaeological charcoal, we will try to reveal the chaine opératoire and the socio-professional organization of wood cutting and fuel production. Afterwards, a dendrochronological approach on charcoal will authorize to inter-date the archaeological sites studied and to discuss the type of wood practiced (existence of coppice?).

TH6-10 Abstract 02
The use of charcoal in metallurgy
(Iberian Peninsula, 14th and 15th centuries)

Author - López Rider, Javier, University of Córdoba, Córdoba, Spain (Presenting author)
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Keywords: Charcoal, Late Middle Ages, Metallurgy
Presentation Preference - Oral

Among the various raw materials offered by the forest, the charcoal had a leading role. This is one of the most used fuels throughout history, thanks to its high calorific value. In the Late Middle Ages, it became a must for industrial processes as a source of thermal energy, especially in the field of the industry. 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 Hispano-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. Vaschalo, Christophe, ISEM UMR 5554/LA3M UMR 7298, Montpellier, France (Presenting author)
Keywords: Anthracology, Craft, Fuel
Presentation Preference - Oral

During historical times, fire was one of the main energy used for industry, craft and domestic activities. For the past 30 years, anthracological analyses were realized in Mediterranean France on nearly 80 ancient, medieval and modern sites. If several activities are now well documented (charcoal and lime burning, pottery, cremation), no global approach has been attempted so far. An Inventory was realized, based on a broad range of activities (ceramic, charcoal, lime, vegetal exudates, food, metal, glass, textiles, leathers, soap, salt, plaster) gathered in a same data basis. In order to understand phenomenon of rupture and continuity of the practices, the corpus comprises a chronology going from the Romanization to the Industrial Revolution. Craft and industry constitute the major part of the corpus. This work raises new questions. Currently, anthropologists 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 craftmen used to chose the fuel regarding its specific properties. Nonetheless, our research proves that these ideas are not representative of past practices. For this reason, we propose a new approach which takes into account the constraint imposed by thermic and technical necessities (i.e. concentration of fire, or, on the contrary, circulation of fire in the kilns). Indeed, the choice of fuel does not always rely on the choice of a taxa for itself but on other criteria such as morphology, caliber, humidity level, etc. Furthermore, we propose a different interpretation of anthracological data. Generally, anthropologists consider that their data only reflect the choice of the craftmen 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 this subject. Studies of multi-craft sites will be presented, as well as examples of “gestion sur pied” (distinguish between 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

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Presentation Preference - Oral

The influence of the Mosan copper and alloy industry, in particular brass production during Middle Age Western Europe, is an irrefutably 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 16th century, copper alloys artifacts produced in the Dinant region were so highly prized and considered that the town’s name of Dinant was used in Paris to designate the boilermakers, or the dinandiers (coppersmith).

Cooper metallurgy in the Meuse region dates back at least to the Merovingian dynasty, with a workshop uncovered in the town of Namur at the “Grognon” 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 Moselle region is rich in two products that are necessary for brass production: calamine that contains zinc oxide and natural refractory clay, deer, that is appropriate to build bricks, hearts, smelters and mortars. Copper and brass production however ends abruptly in 1466 in Bouvignes, property of the earldom of Namur, and in 1554 in Dinant, property of the prince-bishop of Liège, when the two cities were defeated in the Burgundy wars led by Charles the Bold.

Since 1995, several archaeological excavations have taken place under the supervision of the Walloon Archaeological Service in the towns of Bouvignes and Dinant. 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 Pars Chevalier, Dinant Oblats, Dinant Rateau and Dinant Churchill – that represent 13 different coppersmith workshop spaces dated between the 13th and the 16th centuries. Because Dinant and Bouvignes were competitors and depended on two rival political entities, our results are highly significant in terms of territory exploitation and cultural identities along the Meuse River.
Between the 18th and 20th centuries the Limousin region was notably lacking in woodland: the level of forest in the landscape was less than 10%. However, it was during this period that the development of the Limoges porcelain industry, a major fuel consumer, took place. Alongside this industrial boom, the urban population was also thriving, thus the need for fuel in the city became even greater.

The 19th century was a period that put great pressure on firewood resources and one wonders how, and to what extent, the population and industry in the city of Limoges were able to meet their considerable fuel requirements. We therefore look at sources that can better trace the evolution of fuel consumption in Limoges. By combining historical sources, we analyse the heavy fuel consumption of the city of Limoges in relation to resources available in the region and describe the different procurement strategies implemented. The importance of the porcelain industry is discussed and we make a start on the evolution of the wooded landscape in the Limousin.
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.
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 spaces.

TH6-11 Abstract 08
Wood architecture in the Early Neolithic (5300-5000 cal BC) site of La Draga (NE of Ibiza)

Author - Dr. Oriol, López-Bultó, Universitat Autònoma de Barcelona, Barcelona, Spain (Presenting author)
Keywords: Early Neolithic, Iberian Peninsula, Pile-dwelling

Presentation Preference - Oral

La Draga is the only Neolithic pile-dwelling site of the Iberian Peninsula. It is located on the shore of the Banyoles Lake (Girona, Spain) in the North-east of the Iberian Peninsula. The site was occupied during early Neolithic (5300-4900 cal BC). The remains of wood recovered at the site have been studied with the objective of characterizing the wood management process: obtaining of raw material, woodworking technology and the use as tools or construction elements. All this process is usually hidden for archaeologist, but its economic and social implications are of great relevance. The analysis of wood elements had been carried out involving a wide range of different methodologies: dendrology, description of morphology, experimentation, tool-marks, use-wear and 3D modeling.

In this work we summarized the result of the analyses of the architectural elements. We outline the main characteristics of the building process of the wood constructions at La Draga, from the obtaining of the raw material to its use for architecture, through its elaboration process.

The analysis of architectural elements (beams, posts, planks, framework, etc.) show in one hand the predominance of certain species of raw material, season of obtaining, diameters and supports selected. In the other hand it has been spotted certain predominance on the elaboration process. Finally, a few master lines of the construction structure have been spotted.

TH6-11 Abstract 09
Dry land and lake-side settlements in the Four Lakes of Amindeon Basin (Greece)

Author - Dr. Chrysostomou, Panikos, Greek Ministry of Culture and Sports, Florina Ephorate of Antiquities, 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 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 axes of populations and ideas mobility from the southeastern Balkans towards central and northern Europe. The location of the settlements confirms the special relationship that local neolithic communities developed with wetland environment, an interaction sustained with an impressive adaptive ability throughout prehistory. Even during Early and Middle Neolithic periods (mid of 7th - mid 6th mil. B.C.), as documented by the excavational data from the settlements Anarghiri XI and Anarghiri XIII and XIX - although some basic choices regarding the construction and organization of habitation’s space refer to dry land occupation - the proximity of those settlements to the adjacent marshes necessitate the adaption of building techniques similar to pile dwellings. At late 6th mil. B.C. the occupation of the lakes and marshes’ shores is intensified, resulting the establishment of several lakeside settlements. The most recent partial or total excavation of some of those and the investigation of extended destruction layers, numerous structural elements and artifacts of various organic materials, yielded new data to the prehistoric research of the region. The preliminary study of the evidence from the lowest waterlogged layers of Limnochori II, Anarghiri IIA and IIB, referring 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 Anarghiri IIB 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, getting and domestic activities, as well as some unique artifacts and ornaments related to the variety of ideological means of expression and orientations of the local prehistoric communities, formulate a unique data set for the research of pile dwellings in Southeastern Europe and beyond.

TH6-11 Abstract 10
Ups and downs. Studying structural wood from the prehistoric lakeside dwelling Anarghiri IIB (Greece)

Author - PhD Candidate Giagoulis Tryfon, University of Bern, Florina, Greece (Presenting author)
Keywords: Architecture, structural wood, Prehistoric lakeside dwelling Anarghiri IIB, Western Macedonia, Greece

Presentation Preference - Oral

The Rescue Excavations Project of Florina’s Ephorate of Antiquities at the coastline zone of Public Power Corporation S.A. – Hellas (Amindeon, Western Macedonia, Greece) has so far yielded substantial new evidence for the cultural development - from Early Neolithic to Late Bronze Age - of this region characterized by the presence of four lakes. Among the numerous finds there are a considerable great number of wooden elements belonging to structures preserved in the lower waterlogged deposits of several prehistoric settlements. Anarghiri IIB is a settlement inhabited since the early 5th millennium BC, was oval in shape and approximately 2.8 hectares in size, in the central part of which the archaeological layers are almost 4 m in thickness. According to the so far unearthed excavational evidence, the earliest occupation’s structures were built in immediate spatial relation to water with matching building choises adopted by the Neolithic settlers, while during the subsequent Neolithic periods (c. 4700–3300/3200 BC) the settlement became a dryland site characterized by successive layers of burnt structures. The large scale project of the last three years has resulted the completion of the excavational research of the cultural deposits at the periphery of the settlement, covering an area of approximately 7,000 m². The study of the various construction techniques implemented by the neolithic builders, especially concerning the exploitation of wood as raw material in several related tasks, is based mainly on extensive sampling of the structural elements preserved in the settlement’s waterlogged layers, as well as on the data set derived from the detailed documentation of finds and findings and their spatial integration in the excavational grid with the use of GIS tools. Although the study is still in an early stage, the study of processing of data and the categorization of the wooden elements in different types according to their preservation, in-layer arrangement, physical and technical features etc. provide useful information concerning the construction and organization of space at the periphery of the prehistoric occupation. Yet, the large scale of the excavation, some particular differentiations in
A research project focusing on Lake Degersee in Southern Germany revealed settlement activity and land use in the hinterland of Lake Constance older than the onset of the pile-dwelling period at Lake Constance in the 4th century BC. The outcomes of recent archaeological and palaeoenvironmental investigations suggest new settlement sites and human impact dating back to the 5th millennium BC (see contribution of Mainberger, this session). Within the tri-national project ‘Beyond Lake Villages – BELAVI’ palaeoenvironmental on-site and off-site data from the Western Altgäu region are synthesised with archaeological records. The chronological basis and with the relation to regional and over-regional vegetation and climatic records is established by high-resolution pollen, charcoal and sedimentary records on annually laminated lake sediments, dendrochronology, and AMS radiocarbon dating. With regard to the results of plant macrofossil and pollen analyses on the cultural layers at Degersee, we expect to provide further evidence of changes in subsistence strategies and landscape management in response to environmental and climatic changes throughout the Neolithic period. Dendrochronology provides information on woodland management of settlers at the periphery of Lake Constance. Main construction timber at Degersee comes from ash trees, and tree ring patterns show a cyclic settlement activity with repeated usage of small woodland plots with intermittent falls. Wood charcoal remains from lake sediments complement the spectrum of potentially selected construction timber, to gain a more complete picture of wood resource usage. Geoarchaeological investigations look into land use impacts, namely erosion, and together with the taxonomic analysis and dating of embedded charcoal can give further chronological as well as information on prehistoric vegetation cover.

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**TH6-11  Abstract 14**

**The Neolithic Landscape of Westallgäu Region – first results of BELAVI in Southern Germany**

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**Keywords:** Cultural landscape vs Aquatic landscape, lake shore settlements, Neolithic

**Presentation Preference:** Oral

Precisely dated, laminated lake sediments contain an amazing wealth of archaeological background data. If their palaeoenvironmental, palaeoeconomic and palaeoclimatic information can be exactly paralleled to waterlogged archaeological evidence from lake shore sites, a dataset on human activities in landscapes far beyond the lake shores is generated. This is the core outcome of a research project completed in 2010, focusing on the small Degersee Lake in South Western Germany. The Degersee project triggered not only a whole series of new discoveries, but also the design of the tri-national Beyond Lake Villages - Project (BELAVI), which started in 2015. The German working – group focuses on the Stone Age of Western Altgäu, a pre-alpine region between Lake Constance and the European watershed between Rhine and Danube River systems. Topographic and hydrographic models illustrate that in the Holocene the landscape was characterized by woodland growing up on drumlin rows and moraine belts, and by an entanglement of lakes, bogs, lowlands and water courses. The archaeological assessment of the Western Altgäu region is based on a concept of complementary components, with the cultural landscape dominated by farming activities on one hand, and the aquatic landscape with its benefits in respect to foraging, settlement-building, and communication on the other. The presentation will provide with initial results of the GIS - supported landscape analysis and first outcomes of 2015 and 2016 field campaigns.

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**TH6-11  Abstract 15**

**Beyond Lake Villages in the Neolithic of Austria**

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**Presentation Preference:** Oral

Austria's prehistoric lake village sites have been known for over 150 years. Research in the 19th and 20th century identified a number of prehistoric lacustrine structures, with rich cultural deposits. But research into Austria's Pfahlbauten (pile-dwelling) phenomenon has been characterized by discontinuity and modern transdisciplinary research has been limited in practice and at a theoretical level. This has begun to change with several new research initiatives focussed on the Salzkammergut region in Upper Austria. This paper presents data analysis from the international project ’Beyond Lake Villages’ (funded by FWF-DFG-SNF 2015-2018). The Austrian part of the project focuses on the Lake Attersee-Mondsee region, including both large and small bodies of water, bogs, and newly discovered ‘hinterland’ sites. The aim is to characterise the impact in terms of land use dynamics during the Neolithic with special focus on the 4th millennium BC. The project goals are (i) to establish a highly resolved Holocene...
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 Landesdenkmalamt Baden-Württemberg and University of Vienna, funding: SNF-DFG-FFW). Three archaeological and three palaeoecological teams work together on three small lakes on the Northern side of the Alps. The aim is to compare environmental changes and human impact of Neolithic societies. The Swiss study area is Lake Burgäschi, a small water body in the central part of the Swiss Midlands. Archaeological research started already in 1877 and several major excavation campaigns took place in the 1940ies and 1950ies. Up to now four settlement of the 4th millennium BC areas are known and single finds indicate settlement activities during the 5th and 3rd millennia BC. The presentation gives an overview on former and recent activities in one of the classic find spots of Swiss pile-dwellings research. A special focus will be put on new archaeological and palaeoecological results.

Above the lakes – Organic finds from Bronze Age mines in the Alps

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Keywords: Mimes, Organic material

Presentation Preference - Oral

Organic finds fascinate as they convey exceptional insights into prehistoric daily life and work routine. Organic objects make up the bulk (far more than 90%) of material culture in the period from the Stone Age to very recent times (19th cent.).

Aside from underwater and wetland sites organic materials such as wood, fur, skin, leather and textiles have also been preserved in considerable numbers in several alpine mines (e.g. Hallstatt, Mitterberg). Those ancient mining relics are fundamentally different from the objects we know from wetland and underwater sites in terms of taphonomy, functionality and above all research history. Those hot handles, lightning tapers, buckets, mining timber, excrescences and so on are remnants of large scale prehistoric production systems. A particular difficulty in dealing with these objects lies in the uncertainty whether they represent highly specialized mining tools or tools commonly used in the settlements as well. Comparison with the organic finds from wetland and underwater sites is essential in the understanding of the finds from the alpine salt and copper mines. In addition the alpine finds present important complementary information in the analysis of organic finds from bogs, wetlands and finds from wetland and underwater sites is essential in the understanding of the finds from the alpine salt and copper mines. In 2015 started the international research project “Beyond lake villages: Studying Neolithic environmental changes and human impact at small lakes in Switzerland, Germany and Austria.” (University of Bern in collaboration with Landesdenkmalamt Baden-Württemberg and University of Vienna, funding: SNF-DFG-FFW). Three archaeological and three palaeoecological teams work together on three small lakes on the Northern side of the Alps. The aim is to compare environmental changes and human impact of Neolithic societies. The Swiss study area is Lake Burgäschi, a small water body in the central part of the Swiss Midlands. Archaeological research started already in 1877 and several major excavation campaigns took place in the 1940ies and 1950ies. Up to now four settlement of the 4th millennium BC areas are known and single finds indicate settlement activities during the 5th and 3rd millennia BC. The presentation gives an overview on former and recent activities in one of the classic find spots of Swiss pile-dwellings research. A special focus will be put on new archaeological and palaeoecological results.

Sailing the lakes of the Alps.

Author: - Tiburi, Francesco, Università Aio-Marseille 1, Avenzano, Italy (Presenting author)
Keywords: Boats, Lakes, Monoxyle

Presentation Preference - Oral

The aim of this paper is to propose a new framework to deal with the topic of ancient monoxyles and canoes that have been found in great number in different prehistoric sites of the Alpine region, and particularly to deal with those pertaining to pile dwelling sites. Usually considered simple boats, essentially in use for fishing and for short travels on water; these objects have not been studied in the same way around the Alps. Their knowledge is in fact not 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 overlap the often-overestimated idea of a sort of primitivism of these ancient ships, as well as to propose a new and more complex interpretation of their forms and features.

To do this, the paper first tries to examine why the analysis of these boats appears to be usually conditioned by the ethnomorphological interpretation of the “modern primitive monoxyles” in use in some technologically regressed regions of Africa, Asia or Oceania.

After doing this, in the second part, the author considers the relationship between man and water in lacustrine environment...
TH6-11 Abstract 21

Pots, pans and dishes to understand food in a pile-dwelling Neolithic society

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Keywords: Dairy products, Organic residues, Pottery use

Presentation Preference - Oral

Traditionally, pottery use has been discussed through morphological characteristics and mechanical properties of the vessels (Rice 1987) but amorphous organic residues analysis has also greatly contributed to understand exploitation of natural resources during Neolithic times (Evershed 2008). Nevertheless these methodologies are rarely combined due to the gap between dating and the possibility to stop the recovery of lipids and the restoration of the ceramic vessels. At the site of Clairvaux XIV (Middle Neolithic, NMB-396-376 century BC), the large and diversified corpus of ceramic vessels (377 vessels withrestituted profiles) combined in anoxic condition favoring lipids preservation offers a unique opportunity to investigate the use of pottery to better understand lake dwelling Neolithic society (Pétrequin et Pétrequin 2015).

The corpus was first classified based on morphological and morphometric criteria. Chemical analysis of the lipids preserved in the ceramics was carried out using a systematical strategy combining chromatographic (HT GC), spectrometric (HT GC-MS, NanoESI MS and MS/MS – Mirabaud et al. 2007) and isotopic (GC-C-IRMS) techniques. The data obtained on 95 pottery conducted to: (i) the identification of a broad diversity of commodities processed in the vessels, mainly from animal origin; (ii) the establishment of clear relationships between content, traces of cooking, shape and volumes of the vessels.

This study highlights some characteristic consumption pattern of the Neolithic people living at Clairvaux XIV in the first half of the 4th millennium BC. First, a clear difference is observed between cooking pots and serving vessels. Dairy substances were investigated for layer 13 and 53 large-volume and 33 small-volume samples for layer 14. This allowed the recovery and identification of dairy products in these vessels.

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 our knowledge about the daily lives in a pile-dwelling Neolithic society.

Keywords: Dairy products, Organic residues, Pottery use

Presentation Preference - Oral

TH6-11 Abstract 23

A new look to late Neolithic plant economy from the site of Parkhaus Opéra (Zürich, Switzerland)

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Keywords: archaeobotany, GIS, sampling strategies

Presentation Preference - Oral

Archaeobotanical research in the Alpine Forstland has a long tradition. Abundant quality data have been produced since the seventies of the XIXth century. The Horgen period (ca. 3400 - 2900 cal BC) has been particularly well investigated, especially since the excavation of Arbon Bleiche 3. It was after this project that researchers realized that the representative sampling of lakeshore settlements with paleoaeconomic aims (e.g. characterizing past agriculture and gathering practices, as well as diet) was only possible through the systematically-taken surface samples of large volume (ca. 5 L).

An optimal sampling strategy was conducted at the recently excavated late Neolithic layers of the site of Zürich-Parkhaus Opéra. Layers 13 and 14 date to the years around -3160 BC and -3090 BC respectively. Layer 13 was preserved over a surface of 3000 m². Layer 14 was documented in more or less good preservation in a smaller area of around 1000 m². A systematic sampling strategy was conducted and a new method of analysis was developed for the small samples. The new method of sample size investment possible. These large samples were subsampled before sieving, producing one large-volume (sieved with 8 and 2 mm sieve fractions, for the recovery of large-sized seeds and fruits) and one small-volume sample (sieved with 2 and 0.35 mm sieve fractions, for the recovery of the small-sized grains). Around 250 large-volume samples (ca. 5 L) and ca. 120 small-volume samples (ca. 0.3 L) were investigated for layer 13 and 53 large-volume and 33 small-volume samples for layer 14. This allowed the recovery and identification of over 200'000 plant remains for layer 13 and around 40'000 for layer 14. The data were evaluated on the basis of density (remains per litre of sediment) and ubiquity (percentage of samples in which a type of remain is present), as well as through qualitative evaluations of the spatial distribution of the concentration of remains at the site.

The large-scale sampling strategy applied allowed some new observations concerning taphonomy and economic activities taking place at the settlement. The distribution and diversity of plant remains found in our samples seem to show connections to several formation processes and routes of entry that we are trying to disentangle (lake action, animal dung, areas of accumulation of rubbish, etc.). In addition to this, a better evaluation of the role of some of the main crops like barley and pea, as well as the most relevant gathered plants, was possible, thanks to all these methodological improvements. Our aim with this presentation is to propose our strategy as an optimum for paleoaeconomic evaluations of large-scale excavations in wetland settlements.
TH6-11 Abstract 24
Settlement dynamics and mobility in Late Neolithic Southwest Germany

Author - Kaiser, Mirjam, University Freiburg, Freiburg, Germany (Presenting author)
Keywords: Late Neolithic, pile dwellings, settlement system
Presentation Preference - Oral

The pile dwelling site Bachweissen I (Bad Buchau, Kr. Biberach) located at the Federeisen fen in Baden-Württemberg, excavated in the years 2005 and 2011, can be assigned to the Late Neolithic Schwärsenried Culture between ~4000 and 3800 BC. The site itself is dated by dendrochronology around 3970 BC.

The objective is to model a settlement system during the Late Neolithic by comparing the features, the corpus of finds and the results of natural scientific analysis of this settlement with other known settlements. The main source of information of this comparison are the known wetland sites. To understand the possibilities and limits of such a model it is necessary to discuss which aspects of life cannot be traced in the archaeological record and are forced to remain in the dark. Nevertheless important factors of how life is functioning among human groups can be hidden there. E.g.: Little do we know about what happened on the mineral soil during the same time.

In a first step a comparison of settlement structures, their duration, subsistence strategy, management of resources and the distribution of material culture characteristics in Upper Swabia will be made. In a second step the comparison will be enhanced down to Lake Constance in the South and up to the Neckar area in the North.

Such a model gives an important opportunity to address specific questions in order to get a closer understanding of the way of life of past people: How are the humans adapted to their surroundings? How do they move? What is the impact of settlement dynamics and the associated degree of mobility on the culture of the people and their interaction with each other? How can we assess migration? Do we have to re-evaluate the Swissenried Culture?

The presentation will give an insight in the current state of this PhD project and discuss the preliminary results.

TH6-11 Abstract 25
Bronze Age pile dwellings in Northern Italy: chronology, environment and architectural features

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Keywords: Cultural interactions, northern Italy, pile dwellings
Presentation Preference - Oral

In northern Italy the widest spread of pile-dwellings took place between the 22nd and the 15th century B.C., during Early and Middle Bronze Age and endured till the first phase of Late Bronze Age (13th century), with a considerable difference with situation North of the Alps. From around 2000 cal BC, we assist to the spread of pile-dwellings, mostly around Lake Garda and its morainic amphitheatre, but also in the lakes of the inner areas of the Barcis and Euganean hills. This period is therefore characterised by strong cultural changes and radical reorganisation of settlement patterns and socio-economic systems. Some recent excavations allow us to follow the technological and cultural evolution of the communities living in the area and to identify the development of the architectural techniques. The findings show long distance interactions and cultural relationships with Western, Central and Eastern Europe. Interesting is the connection between Varese lake and Swiss plateau and between the Garda lake and the Danube basin. In the pile-dwelling villages the extraordinary preservation of organic remains concerns not only wooden structures, but even a lot of tools made with perishable materials. Thanks to those we can build a true-to-life reconstruction of those communities. The study of the finds and the data obtained from multidisciplinary researches show us an economy based on a settled down agriculture and breeding farming. Craftmanship becomes more organized and integrated in the communities only starting from Middle Bronze Age. Subsistence economy mainly bases on cereals agriculture; hunting and fishing constitute a part of the diet, integrated with harvesting of spontaneous fruits. The abundance of cornels, hazelnuts and acorns shows how the inhabitants of the pile-dwellings intensively exploited the areas around the villages.

TH6-11 Abstract 26
Osseous artifacts from the prehistoric lakeside settlements of Amineion, Western Macedonia, Greece

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Keywords: Greece, osseous technology, Western Macedonia
Presentation Preference - Poster

In the last decade the intensive rescue excavations of the Archaeological Service of Florina unearthed a great number of prehistoric settlements close to the four lakes of the Amminion basin that date back from Greek Early Neolithic (c. 6800-5800 BC) to Greek Middle Bronze Age (c. 2200/2100-1600/1500).

The excavation of these sites yielded an impressive and diverse assemblage (more than 4000) of bone and antler artifacts which shows that, as in the prehistoric lakeside settlements of Central Europe, the osseous artifacts played an important role in the everyday activities of the inhabitants of the wetland sites of the region. In this short paper, there will be an attempt to present the osseous artifacts of some of these settlements.

TH6-11 Abstract 27
Cultural layer formation, production and dwelling areas on pile-settlements of Upper Dvina region

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Presentation Preference - Poster

Different processes, conditions and milieu of cultural layers’ formation were described on Neolithic pile dwellings sites excavated in Upper Dvina region. The site Serteya II (remnants of pile dwelling settlement from the 3rd mill BC) is situated in the floor of a Holocene post-lake basin and archaeological structures occur within coarse-detritus gyttja at the depth of approx. 80-150 cm b.g.l. Although any sediments synchronous to the time of pile-dwelling settlement existence were not revealed - the conclusion based on the analysis of sediments in trenches and in a hand auger coring at the site area and immediate surrounding and radiocarbon dating of organic deposits and different ancient artefacts and constructions’ remains. It testifies that the site was established on the open surface not covered constantly by water. It is an important observation for understanding cultural layers’ formation and process of cultural remains deposition, as well as depositional processes of sedimentation on this place. Several zones with artifacts and ecofacts in situ were uncovered at the site - they were: nuts, fish bones, shells and other materials, not mixed, which occasionally and intentionally were accumulated in pits or garbage heaps, nearby preserved remains of dwellings.

They could be interpreted as open production areas. Inside the remains of wooden constructions, sandy platforms for fire-places were recorded - remains of all year production areas, which were deposited in another manner.

We could also suppose a much higher erosion of the upper cultural layer, where material was admired by environmental factors during millenium changes (lake’s regression/transgressions) in the process of its deposition. Here we can trace clay penetration and materials accumulation around wooden piles, fragmentarily of artifacts, and homogenous distribution of material within the cultural layer.

Other particular layers and other organic remains were uncovered at the site 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 II site, also in the buried lake shore zone.

TH6-11 Abstract 28
Geophysical prospection of submerged Neolithic settlements in Lake Semnica (Pakov O primary, NW Russia)

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Keywords: geophysics, Neolithic, Semnica
Presentation Preference - Poster

First archaeological sites on the bottom of Lake Semnica (13 km², 148 m a.s.l.), located in NW Russia on the border with Belarusia were uncovered in the 1970s. These lacustrine sites, dated to the Early-Middle Neolithic, were located along the shore of this lake basins and rivers distributed on the recent lake bottom. They comprise the first settlements of LBK communities in this region, prehistoric pile-dwellings, and the easternmost megalithic construction of the 3rd mill BC known so far in Europe. Lot 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 palochnnels and the typical strong magnetic anomalies which could be ascribed to ancient fireplaces or kilns. Supplemeting 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 reconstrcut in details palaeo relics, 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.

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TH6-12 Abstract 01

Ritual continuity and changing monuments in the southern Serrpin Mountains, Northern Ireland

Author - Dr. Brogan, Cabrina, 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/rural practices. Taking the southern Serrpin Mountains as a case-study, it is shown that Bronze Age ritual activity tended to occur within established Neolithic ritual landscapes. The conclusion of this paper discusses some of the possible reasons behind this stability including functional, ritual and political reasons. The Serrpin Mountains form the largest mountain range in Northern Ireland, stretching across the north-west of the country. Glacial activity during the last ice-age has created a landscape of rolling mountains cut by deep glens. Today the upper slopes of the mountains are largely unhabited 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 Serrpin region reveals particularly high concentrations of Neolithic burial activity, suggesting that this may have been perceived as a ritual landscape. The advent of the Bronze Age sees profound cultural changes throughout Ireland and evidence from a recent genetic study has even indicated that there was a significant migration of people into Ireland (Cassidy et al. 2006). Within the funerary/ ritual spheres, megalithic burials are gradually abandoned as burial within cist and pits becomes more prevalent and new ritual
structures in the form of stone circles and alignments emerge. These dramatic shifts in culture, and possibly even population, speak of change and discontinuity. Analysis of funerary ritual sites within the Sperrin Mountains, however, suggests that, despite these dramatic cultural changes, there is a remarkable degree of spatial continuity between the Neolithic and Bronze Age ritual landscapes. While the face of ritual may have changed, the overall evidence indicates that the perceived ritual significance of the land endured.

TH6-12 Abstract 02
Viking-Age landscapes in the longue durée: change, continuity, and perceptions of place

Author - Dr. Leonard, Allison, University of Cambridge, Cambridge, United Kingdom (Presenting author)
Keywords: Landscape, Portable material culture, Viking Age
Presentation Preference - Oral

It is no simple task to assign dates to a landscape. In England, however, metal-detected artefacts recovered from rural contexts provide valuable benchmarks that bring chronological narratives of settlement and activity to light. This can be used to highlight specific ‘moments of crisis’ within narrow timeframes, such as the reduced circulation of coins in certain parts of England during the early Viking Age. When viewed from the perspective of the long durée on the other hand, it often illustrates that despite centuries of political change and large-scale migration, many places were continuously selected for.

Through case studies in eastern and midland England, this paper explores instances of change and continuity in the rural landscape. Looking backwards and forwards from the Viking Age, when visible shifts in settlement would be anticipated, the evidence reveals notable patterns and curious anomalies. Prominent to Roman roads, for example, is a shared trail across the case studies, but why does treatment of other Romano-British structural remains appear to differ so wildly? Drawing upon a range of supporting evidence such as place-names and environmental data, and looking at the artifactual and landscape evidence within a number of shifting chronological frames, it is suggested that certain discontinuities and continuities can be explained with reference to the evolving agrarian economy. Conversely, the influence of antecedent features such as barriers and structural remains on succeeding communities requires alternative explanations. It is suggested that in these cases, their integration or avoidance was contingent upon the ways in which communal memories and local perceptions of place were transferred.

TH6-12 Abstract 03
The way to the shore: why going to the beach may not be as straightforward as you might think

Author - Johnson, Andrew, Manx National Heritage, Douglas, Isle of Man (Presenting author)
Keywords: coastal landing places, Isle of Man, old rights of way
Presentation Preference - Oral

Although modern ports and harbours dominate how we relate to the sea and to associated maritime activities and industries in the present, technological and scalar differences resulted in alternative responses to these events. 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 this way in which we take access to the beach for granted today, my research focusses on identifying natural landing places – without quaysides, jetties or breakwaters – and the routes which connected them to the agricultural hinterland.

Some landing places were naturally usable, but others show evidence for the adaptation of the intertidal shore and other simple alterations designed to improve safety or ease of use. It is sometimes possible to glean from this the reasons the landing places were exploited: fishing and the collection of seaweed are amongst the most obvious uses. Some landing places were naturally usable, but others show evidence for the adaptation of the intertidal shore and other simple alterations designed to improve safety or ease of use. It is sometimes possible to glean from this the reasons the landing places were exploited: fishing and the collection of seaweed are amongst the most obvious uses.

The character and status of the ways to the shore are similarly significant in betraying their former purpose. Some survive only as footpaths, some as tracks leading to individual farms, and others have been transformed into public highways. In this respect, map regression techniques, particularly when allied with GIS, provide a powerful means of gathering and presenting the information.

TH6-12 Abstract 04
Multidisciplinary data-crossing about settlement and land-use in Jura mountains (5th-17th c.)

Author - PhD student Chevassu, Valentin, MSHE Liedoux / Université de Bourgogne-Franche-Comté, BESANCON, France (Presenting author)
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In 1962, the American historian R. Emery (p. 5) defined the French 13th century as “the golden age of the [mendicant] friar”, a hypothesis developed later by the French historian J. Le Goff (1988) in a programme dealing with the relationships between Mendicant Orders and medieval cities. Archaeological and historical surveys and archival studies in other particularly in Bretagne (Martin, 1970) or in Alsace and Lorraine (1985) since provided numerous and varied clues allowing a renewal of the problems linked to the settlement and building of Mendicant convents. Recent historical and archaeological analyses concerning the north (Volf, 2003) or the south of France (Gaby, 2012) enabled to improve the knowledge on the different ways the Mendicants could settle in towns in terms of political, ecclesiastical or material support and integrated spatially and institutionally the city. Nonetheless, the questions of natural constraints, of a pre-established “urban” landscape in the vicinity of the mendicant convents still remains difficult to answer in most cases.

This paper aims at putting emphasis on the phenomena of change and continuity in the settlement of Mendicant Orders in urban spaces through the example of the cities in the diocese of Clermont (Auvergne, centre of France) during the 13th-15th centuries. This is a multidisciplinary approach based on a cross-checking of archaeological, architectural and historical data. It focuses on the reasons why the Mendicants decided to install in specific places in close to the city, particularly for political, economic and social reasons but also due to topographical constraints. It also demonstrates the prevailing reasons for settlement could change according to periods, cities and established urban landscape (e. g. re-use of religious buildings). Thus, this paper sheds light on the study of long-term religious urban landscape in medieval cities.
Can humans change their spots? Site location patterns in Mid-to-Upper Paleolithic Cantabrian Spain

Author: Javier, Oroño, University of the Basque Country, Vitoria-Gasteiz, Spain (Presenting author)
Keywords: Late Middle/Early Upper Paleolithic, Settlement patterns, GIS, Spanish Cantabrian region
Presentation Preference - Oral

Research on the European Middle-to-Upper Paleolithic transition has mainly been devoted to issues of long-standing interest like human anatomy, artifact technology, economic strategies, symbolism or, more recently, genetics. By contrast, other aspects of the archaeological record still require further attention, particularly research on landscape perception and use. As a result, very little is actually known on the decisions and conditions that led Late Middle Paleolithic and Early Upper Paleolithic human groups to settle and move back and forth across the geographical area 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 B.P.) - coincident with the so-called Late Mousterian, Châtelperronian, Aquitanian and Bravetian cultures. The study integrates the spatial analysis of different variables relating to factors like topography, geology, hydrography and habitability that are examined and calculated with the help of modern tools, mainly GIS. Results are statistically treated and compared with other archaeological and environmental data, showing a complex mixture where divergences in settlement patterns through time can sometimes be evident or not, depending on the variables analyzed, and may reveal different – and not necessarily evolutionary - strategies for the peopling of a changing environment. After all, landscape use has always been about decision-making.

The structuring of the Adriatic littoral landscape between Atria and Altinum during Roman times

Author: Dr. Matteazzi, Michele, Catania Institute of Classical Archaeology, Vizzini, 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 harbour areas that were crucial for the economic development of the territory.

If today the relationship between landscape and water looks very tight, we know that was the condition also during Roman times, when classical sources tell us that here was the northernmost part of the great delta of the river Padus (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 Alvis (Adige), Medebacius (Brenta), Reeto (Bacchiglione) and Togiosonus (Bolvienta channel) flowed and mingled with their waters with Po ones; to all this, added with fiasse (i.e. “canals”) Crotoli and Pilisina, two artificial waterways that formed part of an inland waterways 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 remember 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 conus 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 3rd century BC and 6th century AD) in a landscape archaeological approach and through an integrated reading of all the available archaeological, historical and paleoenvironmental data, the final goal we want to reach is double: on the one hand, to identify the environmental factors that both favoured and conditioned the Roman occupation of the territory; on the other hand, to come to a better understanding of the forms this occupation took, and of its actual effects on the natural environment.
illtoral and the hydrologic evolution affected the North Western Eturia sea- and river ports and landing places scattered along the coastline in Antiquity and in the Middle ages. The Roman road network was constructed on stable soils in the coastal strip and in the main river valleys in the frame of a strategic plan. A post-medieval interesting case study is the coastal plain NW of Pisa. Here since the 15th Century several plans aimed to reclaiming a large swampland South of the Massiccio di Calci were made but not achieved. In 1653 an attempt was made by the Dutch Van der Bricht, who built a few windmills in order to raise the ground levels. The coastal progradation had come to an end around 1930, the Arno-Serchio rivers solid transports being diverted from their destination to the sea into swamp filling areas in the frame of the systematic land reclamation pursuits by the Lorena. That caused the erosion of the Arno delta since the end of the 19th century. The present courses of the Arno and Serchio rivers result from complex natural transformations and anthropic actions taken over the centuries, ranging from the straightening of river segments and the draining of stagnant waters to the construction of embankments, dikes, cais di colmate and the building of canals to deviate flood waters.

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TH6-12 Abstract 10

**Prosper in Valley, Hide in Mountains:**

**Dynamics of Settlement in Lubuski (Bosnia and Herzegovina)**

Author: Dziedzicki, Tomasz, Institute of Archaeology, University of Warsaw, Warszawa, Poland (Presenting author)

Keywords: Late Antiquity, Roman, settlement patterns

Presentation Preference - Oral

The paper analyses the changes in settlement brought about by the Roman occupation of the Trebiżat river valley and its surrounding highlands and mountain ranges, a geographically well-defined microregion which today constitutes the modern community of Lubuski in West Herzegovina. The lay of the land, just a mountain range from the sea coast and with good connections through river valleys and passes with the highlands inland, is such that throughout its history it was the border and contact zone of different cultures, economic and political entities and states. In antiquity this area was the close hinterland of Narona, a major city of the region. Not only was it important for the subsistence of the city’s population due to the rich agricultural land and the valley pastures in the highlands, but it also played an important strategic role. The most important road in the province, connecting Narona with Salona, the capital of the province, crossed through the valley as it offered the most convenient route. A Roman garrison ensured the safety of this road, the defence of Narona against indigenous tribes resisting the Roman advance was attained through conflicts between the quickly Romanizing farmers in the valley and the more traditional shepherding populations of the highlands.

A non-invasive archaeological landscape project conducted in the area proved that a most close correlation exists in the area between the level of development of the economy, the level of perceived safety and the locations of settlements. The advent of Roman rule, which brought about pacification of the province and economic prosperity, resulted in a gradual shift from the traditional well-defended 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 those cyclical developments can be observed also in the medieval and early modern periods. It appears that the choices of places for settlement and of the main economic activities of the population of the region were dependent on the perceptions of safety, which in this difficult, mountainous landscape could be achieved in one of two ways: by resorting to inhabitation of naturally defensive places or by the participation of peacekeeping forces, demanding both an economical and political outside involvement, but giving the possibility for much more intensive local economic development.

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TH6-12 Abstract 11

**Comparing cultural transmission patterns in southern Poland during the Bronze and Early Iron Age**

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Keywords: Bronze and Early Iron Age, cultural diversity, cultural transmission

Presentation Preference - Oral

In our paper we want to show the methodological 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 Wisła valley, the Carpathian Foreland, and the West Carpathians), were chosen to test the role of these factors. We apply the comparative method (using standardised data and a set of ‘middle range’ theories) to analyse similarities and differences. The list of variables we included contains: time (the pace and synchronicity of change in specific 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 phytogenetic 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?

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TH6-12 Abstract 12

**Pastoral Nomads’ Use of the Semi-Arid Syrian Landscape c. 1810-1760 BCE: A GIS Projection**

Author: PhD Josephson Hesse, Kristina, Uppsala University, Uppsala, Sweden (Presenting author)

Keywords: GIS, MBI 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 interaction between mobile tribes and city-states in Syria-Mesopotamia during the Old Babylonian period (c. 1810-1760 BCE). My project aims to illuminate the social and economic dynamics between pastoral nomads and settled people in this period. That is achieved by focusing on the nomads’ gradual economic shift from nomadic grazing to the production, exchange, trade, and in the last resort marketing of animals, such as caravanserai and mercenary. Not only are the connections between these groups of human beings, 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 Palmyrena project that I have been a part of. The structured location of several hundred Bronze Age cairns, distributed on strategic hilltops and wadi outlets, in the mountain range outside the ancient trading centre of Palmyra in Syria, indicates that in addition to have been burial chambers these cairns were secondary used as landmarks of territories and routes for trade and migration of pastoralists with their flocks. The landscape image will constitute the base for my further studies of networks and descriptive connections or relationships between people and tribes with places, trade routes, migration patterns etc.

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TH6-12 Abstract 13

**Road caravanserais of the Medieval Middle East: landscape, architecture and patronage**

Author: Ass, prof. Tournari, Cinzia, Abdullah Guli University, Kaysiri, Turkey (Presenting author)

Keywords: caravanserais, landscape, patronage, architecture

Presentation Preference - Oral

In the Islamic world, caravanserais have been faithfully serving travellers, traders and pilgrims for many centuries, sometimes functioning as stopovers until the beginning of the 20th century. The impressive geographical and temporal diffusion of this institution, original to the Islamic world, clearly shows that caravanserais fulfilled a key role in society, in relationship 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 are a ‘cultural institution: the centre of a variety of functions that linked together religious, political and cultural motivations. Yet it is striking to observe that until now road caravanserais have been poorly studied from a comprehensive point of view and are consequently till insufficiently understood. For example, although well know elements of several oriental caravanserais, one of their characteristic features, the relationship of road caravanserais to the landscape they have been built in has not been studied thoroughly.
How did the construction of such buildings transform the landscape and its perception by its hosts, the inhabitants but also their patrons?

I will attempt a broad contextual comprehension of this question by considering if and how road caravanserais engaged in binding together the landscape and creating a distinctive cultural landscape. My approach wishes to inform the understanding of the ways in which different road caravanserais’ construction programs can shed light on landscape, patronage and power within the Roman Empire in different Middle East contexts. In this presentation, in fact, I will compare medieval Anatolia and medina of Syria and I will investigate how the construction of road caravanserais changed the landscape in these two regions. Did it change in the same way? What are the similarities and differences?

TH6-12 Abstract 14

It’s always the same old story... or not?
The ‘changing’ landscape of Cappadocia (Turkey)

Author - Dr. Truchetto, 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 frame, it acted as a cultural, economic and political bridge between East and West of both the classical and the medieval world. For those reasons, taking into consideration the interactions occurred between man (with different needs in different periods) and the landscape (which remained almost the same through time), Cappadocia offers a great variety of “food for thought”.

In this paper, I will focus on three different geographical sectors of Cappadocia, each characterised by its own specific natural features: a) the semi-flat belt between Colonit Archelais/Aksaray and Cappadocia (Kayseri), next to the course of the Kızılma river, b) the area comprised between Colonit Archelais/Aksaray and Tyana/Kemëkarishe, with the volcanic groups of the Melendiz Dağları, Hasan Dağ and Göllü Dağ, and the fertile plain surrounding them; c) the mountainous area between Tyana/ Kayseri and the valley of the Euphrates, at the foot of the Taurus chain.

In this context, archaeological and topographical evidences point towards the existence of settlements’ choices and itinerary patterns of long durée. However, when examining the matter at a more local scale, what clearly emerges is that (in certain areas, at least) some changes took place through time. Towns or villages were abandoned and replaced by other ones; stretches of routes were no more maintained and fell into desue; previously exploited areas were for more favourable regions.

Trying to recognize those changes and understand the different reasons (of cultural, economic, political, military nature) which subtended them will allow to better appreciate the historical evolution of the Cappadocian landscape and the role it played during the course of the centuries.

TH6-12 Abstract 15

Archaeogeography of a border: the roman Ligum system in south Romania (frontier, roads, landscape)

Author - Fajon, Philippe, Ministre 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 “border” 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 an archaeogeographical concept because of its “longue durée” meaning.

In the territory of the actual Romania, after the Trajan conquest, at the very beginning of the second century A.D., the new limit of the Roman Empire is on the northern side of the Danube. In the Wallachian plain, archaeologists consider two different limits named Ligum Alusinus and Ligum Transaludens. The first one is on the western bank of the Olt river, the second one is on the eastern plain 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 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 Ligums 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 contours. The territory of this sector is very specific, including a wide valley with a quite regular slope in the West and a high cliff in the East, before the plateau. The valley is occupied with wetlands and marshes.

This good use of the territory, and its associated organization, has crossed the times until the human kind modify natural landscape.

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.

TH6-12 Abstract 16

The Impact of Water on Settlement Development in Western Europe

Author - Donnelly, Harriet, The University of Sydney, St.Leonard, Australia (Presenting author)
Keywords: oral medieval, settlement patterns, water systems
Presentation Preference - Oral

The establishment or development of any settlement will require a reliable supply of fresh water. The vital nature of this resource creates a significance for water in any discussion of the interaction and relationship between humans and their landscape. During periods of transition, the importance of this relationship, and the effect it has on the development of settlements, can be examined. From the 5th century AD, following the decline of the Roman period in Western Europe, and on into the 12th century AD, the manner in which many of the water systems were used shifted, while other uses remained constant. The movement of various groups into new parts of the continent resulted in changes to the expression of the human relationship to water systems in the urban structures across Western Europe. Places such as Lundenin/Ludeneic 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.

TH6-12 Abstract 17

Redistributing of Ancient Grave Stones in Antioch on the Orontes according to their Provenance

Author - Güven, Erim, Bülazl, Turkey (Presenting author)
Keywords: Antioch on the Orontes, cemeteries, grave stones
Presentation Preference - Oral

The contours of the city of Antioch on the Orontes are revealed in the ancient writings and the excavations conducted on the initiative of Princeton University throughout the 1930s. The grave stones that remained from the Antiquity can provide us with precious data concerning the urban outlines in ascertaining the information we presently have at hand. Nonetheless, we must above all be aware that the grave stones are most often fortuitous finds detached from their original place whose provenance is unidentified. In addition, they are usually acquired by institutions or individual collectors via purchase, donation or confiscation. Therefore, none of the researches executed throughout XXth century has offered a veritable comparative approach between the extant knowledge and the concentration of their find spots, although it may have helped us in mapping out the city.

With this objective in mind, we attempted to find the exact provenances of (around 250) grave stones, as much as possible, within the frame of our doctoral research, in the inventory records of museums (Antakya Arkeoloji Müzesi, İstanbul Arkeoloji Müzesi, Musée du Louvre, Princeton University Art Museum, Worcester Art Museum) and of a local private collection (Ovalı Çeşme Kavakçılık). 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 belonged.

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

Author - Dita, Audzina, University of Latvia, Latvia (Presenting author)
Co-author(s) - Jakovļeva, Mārīte, University of Latvia, Latvia
Keywords: Iron production, landscape
Presentation Preference - Poster

This paper will focus on urbanisation in the Central Baltic provinces and how it changed during Late Antiquity, which is also the topic of Dr. Dita's doctoral research. The region had a crucial strategic position for the Empire, enabled by central location and good connectivity through natural passages and major roads. The good communication network also enabled a highly-developed trade system and exploitation of resources, especially ore deposits. Its cities were hubs of political and economic power, as well as cultural and ecclesiastical centres.

An old theory, still held in regional scholarship, is that the marauding raids of the various barbarian groups had a devastating effect on Late Antiquity urbanization. While I agree that raiding had a negative impact on cities, I rather see the raids as factors of transformation which prompted the cities to become more militarized and actively involved in the imperial defence. Cities were given stronger fortifications and military edifices, such as annona storage houses, and new cities emerged. I will use one case study on these newly emerging cities (the unnamed city at the site of Konjuk in the Republic of Macedonia) to challenge the notion of dying Late Antique urbanisation and I will try to elaborate more on the issues that kept regional scholarship clinging to this notion and lagging greatly behind the more developed international scholarship on Late Antiquity and Late Antique urbanisation.

TH6-12 Abstract 19

Warfare and Urban Transformation in Late Antique Central Balkans

Author - Jelena, Jarić, Oxford, United Kingdom (Presenting author)
Keywords: Late Antiquity, Transformation, Urbanism
Presentation Preference - Poster

This poster will focus on urbanisation in the Central Balkan provinces and how it changed during Late Antiquity, which is also the topic of Dr. Jelena Jarić's doctoral research. The region had a crucial strategic position for the Empire, enabled by central location and good connectivity through natural passages and major roads. The good communication network also enabled a highly-developed trade system and exploitation of resources, especially ore deposits. Its cities were hubs of political and economic power, as well as cultural and ecclesiastical centres.

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TH6-12 Abstract 20

Medieval and post medieval village of Zasavje

Author - Miroko, Mihra, Institute for the Protection of Cultural Heritage of Slovenia, Slovenia (Presenting author)
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Keywords: Brniče (southern Slovenia), flood, medieval, post medieval
Presentation Preference - Poster

In the vicinity of city Brežice (southern Slovenia) Institute for the Protection of Cultural Heritage of Slovenia, Centre for Prehistoric Archaeology is carrying out a large-scale archaeological project as a new Hydroelectric power plant is being built on the Sava River. A number of archaeological sites are under threat of being destroyed by different infrastructural building works and by flooding of huge areas in order to make the accumulation lake. Archaeological research of the area, started in 2008, is still not finished.

On the right bank of the Sava River, east of the village Krška as there used to be an area of late medieval and post medieval village of Zasavje, which existed until 1781 when extensive flooding destroyed the old village. After the floods only a few farms were set anew in the vicinity, and until the beginning of 20th century the area was completely abandoned and became agricultural farm land. The Sava River is a typical Alpine river. Water levels can rise fairly high because of melting snow and seasonal spring rains. It can still cause major flooding in the event of a so called one-hundred-year flood. Flooding of the area did not stop until the second half of 19th and the first half of 20th century when the Sava River was regulated. Many of the abandoned river channels can still be seen in the landscape. In 2018 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 literally 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 25,5 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 channels' banks were fortified with limestone slabs. Archaeological research in the area is still being carried out thus final evaluation and interpretation of the identified archaeological structures will be done only after the fieldworks are finished and then all data will be put together and compared with historical and geological data.

TH6-12 Abstract 21

Phenomenon of Medieval and Post-medieval Rural Settlement Abandonment: Can We Observe Continuity?

Author - Dr. Holata, Luciţa, University of Essex, Essex, 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 suggested. A general idea of a 'retreat from the margins' is spread across European countries.

The paper evaluates the conventional concept of abandonment in marginal areas regarding their natural characteristics and tries to discuss the role of natural conditions in shaping of human communities together with their effect in wider transformations of land-use and the emergence of the countryside as a whole. Although the process clearly evokes the considerable change, systematic study in large-scale level has obtained remarkable evidence of continuity as well - 1) some settlements situated in positions originally regarded as marginal were not deserted at all; 2) some settlements survived in shrinkage forms or in close proximity of deserted sites; 3) there is also increasing evidence of multiple exploitation or utilisation in original settlement areas after settlement desertion (continuity in land-use, field systems, network patterns etc.). Thus, cases of total abandonment as well as an entire retreat from the land are very rare. Although the examples across Europe are included, the paper focuses on Central Europe (esp. the Czech Republic) and England, where the long-term interdisciplinary research concerning deserted settlement and large collections of data gathered and evaluated by the author, enable deeper conclusions.
Among the factors that affected the dramatic shifts in patterns of living are: deforestation, imposition and acceptance of a macro regional housing model that fits better to the new type of economy, the need for an efficient exploitation of local sources (especially salt).

As a consequence, at the transition from the Middle Bronze Age to the Late Bronze Age in Eastern Romania it occurs a major change in the housing model which was represented by fortified settlements (strongholds, inter / visibility, the control of some satellite settlements, the control of the access roads, the placing in the proximity important water courses). This model encountered in the all the Sub-Carpathian area will be replaced with a kind of a micro regional swarming model much closer for the cattle breeders communities with new preferences (secondary and tiny watercourses, lowlands, Chernozem soil, solarity, seasonal dwelling structures). These changes are visible at the level of the communication system and transfer of goods, too. Thus, the dominant north-south road in the Middle Bronze Age is replaced with east-west road that seems to dominate the Late Bronze Age. By adding these features can be certified a kind of a territorial exclusion: the Middle Bronze Age communities preferred the area located between the north-south hydrographic axis represented by the Siret River in the east and the Carpathian area in the west. On the other hand, the Late Bronze Age communities seem to avoid the pre-alpine location and preferred the area bounded by the Siret River in the west and the north of the Black Sea in the east.

Through the interconnection of the data obtained from the landscape analysis, the analysis of materiality, of the different perceptions for this two types of communities it result that for the area of study was applied a model of a total change. In the proposed case study, that took place in a micro region in eastern Romania, there were founded the data to support this assumption.
Surgical treatment at the Danish Cistercian Abbey of Þm: A critical analysis

Author: MA Møllerup, Lene, Museum Størandborg, Størandborg, Denmark (Presenting author)

Keywords: medieval abbey, skeletal paleopathology, surgical treatment

Presentation Preference: Oral

Through eight decades the Cistercian Abbey of Þm, Denmark, has been well known nationally and internationally for its traces of surgical treatments on medieval human bones. The human bones derive from the monastic burial grounds in and around the Abbey run. Most of the bone material was excavated in the period 1933-1936 and followed up with a Danish publication in 1936 and a German publication in 1941, both dealing with the skeletal paleopathology. These publications furthermore argued that the monastery functioned as a hospital in the medieval period 1172-1536 AD, a claim which has since, remained practically unchallenged. Modern anthropological analysis is questioning the former interpretation of the human skeletal material. New insight gives the basis to reevaluate the role of the Cistercian monks as physicians and surgeons. This paper looks into the alleged surgical treatment on human bones and deals with the question, whether surgery has taken place at the site, as well as the monastery’s role as a medieval hospital.

Heavy metal: health, medical tradition and cultural exchange in historic Iceland

Author: Walter H, Joe Wallace, Reykjavik, Iceland (Presenting author)

Keywords: disease, osteology, alchemy, heavy metals, culture, Iceland, monastery, hospital, medicine, treatment, syphilis, mercury, paleopathology, ICP-MS

Presentation Preference: Oral

Skinfullkastur, located in the east of Iceland near the Vatnajökull glacier, operated between AD 1493-1554. As an Augustinian monastery, Skinfullkastur ran a hospital with sophisticated medical practitioners, providing medicinal and surgical treatments. The specialised medical knowledge, range of medicinal plants and herbs, and evidence of imported objects and food found at the site are indicative of Iceland’s international cultural inclusion in the past. Between 2002-2011, 271 out of 265 individuals were excavated from the site, presenting a vast array of medical conditions including syphilis, tuberculosis, hydatidosis and Paget’s disease, for example. In addition to disease, it is also vital to consider environmental influences on human health as a result of living in an arctic environment. The centuries after the large volcanic eruption in Vëgötnin in 1477.

In the 13th century, alchemists began to use cinnabar ore (mercury sulphur) as a medicinal elixir as it was believed to impart long life due to its deep red color and philosophical associations with blood and the soul. Towards the end of the 15th century, distillations and fumigations of mercury from cinnabar became widely used to treat syphilis and remained to be the only viable treatment for syphilis until the 20th century. Otherwise, mercury (cinnabar ore) was used as a red colored pigment in scholarly distillations and fumigations of mercury from cinnabar became widely used to treat syphilis and remained to be the only viable treatment for syphilis until the 20th century. Otherwise, mercury (cinnabar ore) was used as a red colored pigment in scholarly

Curing animals and human with wood tar in the Mediterranean from the Middle Ages to Present

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Keywords: Ethnomedicine, Pharmacology, wood tar

Presentation Preference: Oral

Wood tar, extracted by dry distillation, has been used in human and veterinary medicine since ancient times. This is particularly the case of tars from conifers (Piceaee, Cupressaceae, and Taxodiaceae) in the Mediterranean region, where they are still produced and used for these purposes. Biological and chemical researches conducted on conifer are mostly oriented toward the analysis of essential oil, mainly obtained by the process of plants hydro-distillation. However, the mankind used to care both humans and animals with wood tar. Therefore, ONGUENT project is focused on the investigation of this forgotten chapter of the research. ONGUENT aims to fill this gap by studying medicinal tar in a systemic way, from the plant raw material to the end product and its use, on both sides of the Mediterranean today and in the past, and by assessing their actual medicinal effects, or even toxicity. Our innovative research is embedded in an inter-disciplinary and cross-sectorial frame, crossing the methodologies and perspectives of the humanities and life, material and environmental sciences (history, archaeology; bio-archaeology: Organic chemistry and Phytochemistry, plant biology and molecular biology, pharmacology, toxicology and ecology) carried by a Mediterranean and complementary consortium of scientists. Both diachronic and synchronic, this research takes place in different space-times: medieval and post-medieval Provence (France) on the one hand, and current Atlas and Anatolian mountains (Morocco/Turkey). Through a cross-approach, research is organized into three work packages. The first work package deals with natural resources, knowledge and know-how used to produce wood tar and the micro-environmental impact of this activity. The second work package aims at providing a better understanding of wood tar as material, of its biological and chemical composition through the acquisition and analysis of different plant species tars, the development of a referential database, the analysis and chemical characterization of archaeological tar residues, and finally comparison of the molecular spectra of tars and essential oils. The goal of the third package is to study the use of these different sorts of tar in human and veterinary medicine in the past and today, to assess their actual medicinal properties and their possible toxicity. By its retrospective and prospective dimension, this project addresses heuristics issues offering a unique interdisciplinaire 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 treatments is readily observable when we analyse the actual recipients of such procedures. Therefore this presentation aims to provide a critical evaluation of potential evidence for treatment found in human skeletal remains from archaeological contexts from Northern European countries, and in particular England. Palaeopathological analyses have established that a range of diseases and injuries are visible on the human skeleton, although the majority of diseases would have only affected the soft tissues. The most commonly observed skeletal lesions include dental disease and trauma. Dental disease in the form of caries and periapical lesions increased in the later Medieval period, especially with the wider availability of sugar and finely milled flour that would have promoted dental caries. However, according to medical treatises removal of infected teeth was largely avoided and it must be speculated that the high percentage of teeth lost ante-mortem in medieval individuals can be attributed to natural causes. Fumigation was one form of treatment for ‘tooth worms’ thought to cause dental caries and potentially such treatment could initiate the upper respiratory tract and, if chronic, could lead to respiratory ailments. Nevertheless, since infections may have a number of different causes and should therefore not be seen as proof for dental treatment.

More solid evidence for treatment is found in form of surgical interventions such as trepanations and amputations. Trepanations, or opening of the cranial vault has been practiced for millennia and evidence for successfully healed (and unhealed) trepanations is known from almost every continent. Trepanations would have been 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 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.

**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. Colle’s fractures were found in six individuals; five were females and one was male. Two of these were young adults, two mature adults, and two old adults. One mature female was diagnosed with a Clay shoveller’s fracture of the 1st and 2nd thoracic vertebra, and one young adult male with a Boxer’s fracture of the fifth metacarpal. Examples of trauma also include two subluxated shoulders and one case of myositis ossificans on the posterior tibia.

Males had more trauma than females and the prevalence was higher in older individuals, which was also found in most of the previous biocultural 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 unainted, and two were unhealed perimortem injuries. Barbier-surgery in many of the locations are known from historical sources and in the mid-18th century provincial doctors were employed to treat the injured.

-- TH6-13 Abstract 11 --

Living on the Edge: Trauma Patterns in Medieval Vilnius (16-18th c.)

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Keywords: Trauma, Vilnius

Presentation Preference - Oral

Skeletal remains provide one of the most crucial and direct sources of evidence for the occurrence of violence, work related activities, and ill-fortune in the past. While fractures are the most common pathological condition, we still struggle with the most plausible explanations for its cause and presumable outcomes.

Vilnius, the city of diversity both religious and cultural, serves as an interesting subject for studies of everyday life and its peculiarities in medieval period. Thus, 5 different objects representing varying social status were selected for investigation of trauma pattern: Cathedral and Liejyklos street (17-18th c.) - elite members of society, church of The Holy Trinity (17-18th c.) - clerics, Mindaugas street 7 (16-17th c.) - Vinius laymen, Mindaugas street (16th c.) - poor.

A total of 109 injured individuals (27.3% of total individual count) were observed among 400 examined males, females, and non-adults. 82 (20.5%) had only one fracture, while 27 (6.8%) suffered more than one injury. Five cases were recorded as perimortem - no healing signs suggested an early death. Males correspond to the universal model which indicates their dependency to a ‘higher-risk’ group. Injured males consisted 75.2% of all injured individuals. The most commonly fractured part of the skeleton was a rib accounting 30.3% of all injured individuals. Female fractures were characterized by injury to the forearm and spine area, while the males were predisposed to diverse fracture locations.

Interesting patterns emerged when compared different sites. While Mindaugas street burial ground considered to consist of wall healed lesions with only slight angular deformity and little overlap. Two of the fractures were healed but unainted, and two were unhealed perimortem injuries. Barbier-surgery in many of the locations are known from historical sources and in the mid-18th century provincial doctors were employed to treat the injured.

-- TH6-13 Abstract 12 --

Social welfare and health status of the Upper Lauzisz - a Tomersdorf/Toporów settlement case study

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Keywords: Excavations, Lower Silesia, Paleopathology

Presentation Preference - Oral

Since 2014 the Department of Anthropology at the Wrocław University of Life and Environmental Sciences has been conducted the research project “Early Medieval Culture and Environment of Upper Lauzisz based on the example of research of the settlement micro-region Tomersdorf/Toporów” funded by National Science Centre in Poland.

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 Tomersdorf/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 Tomersdorf/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%) intertravexal teeth loss was visible. Dental caries was present in 20 cases (62.5%) and in 9 cases (28%) peridontal 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 matura class of age with bilateral amputation of lower thigh was found.

The nature, intensity and incidence of pathological changes found in the skeletons from the cemetery from the micro-region Tomersdorf/Toporów may indicate study group exhibit distinctive features. Variety and occurrence of the pathological lesion may indicate a low level of hygiene, poor health conditions and long-lasting work overloading of the individuals as well.

Based on archival data, it was established that at the turn of the XIXth century in former Tomersdorf theesocial care home (Bouder-unipFleghezhausZODAR) was functioning. This allows tostate working hypothesis that the majority of (even small) adult graves found in Tomersdorf/Toporów are likely to be associated with burials of the residents of this institution.

-- TH6-13 Abstract 13 --

Medieval medical cultures in Sweden – practices and ideas mirrored in materiality

Author - PhD Bergqvist, Johanna, Lund university, Genarp, Sweden (Presenting author)

Keywords: archaeology, medicine, medieval

Presentation Preference - Poster

Medical practice is formed not primarily by knowledge, but by culturally motivated apprehensions of what disease is, what causes it and how the body functions. In medieval Sweden (by today’s geographical borders) the monastic orders brought with them a medical culture with roots in ancient classical and medieval scholastic traditions. This medical culture included its special material culture, i.e. in the form of surgical instruments and other equipment. These artefacts are encountered when monastic sites are excavated. A previous assumption within medieval history has been that it was the monasteries which brought medical knowledge to the North. However, an extensive survey of archaeological findings in Sweden, has revealed that artefacts related to monastic medical culture did not spread outside the monastic milieu to the surrounding society. This can be interpreted as the result of a very limited dissemination of the practices and ideas associated with monastic medical culture. In this paper possible explanations to this, such as clashing medical cultures or paradigms (monastic versus indigenous) and diverse traditions and conditions of communication of knowledge, are discussed. The content of the paper is based on some of the results of a larger research project, published as a doctoral thesis in 2013.
IN HEAVEN AS IT IS ON EARTH: ARCHAEOLOGICAL TRACES OF MINORITIES AND RADICAL RELIGIOUS IDEAS WITHIN SOCIAL IDENTITIES IN THE MIDDLE AGES

Friday, 2 September 2016, 14:00-16:00
Faculty of Philology, Room SP2

Author - Garcia-Contreras Ruiz, Guillermo, University of Reading, Reading, United Kingdom (Presenting author)
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Keywords: Archaeology of religion, Minorities religious, Social identities

Presentation Preference - Regular session

Undoubtedly, a social identity of past societies, religion shall be contextualized in a historic and social frame that can explain this phenomenon in terms of complexity. Religion can be seen as part of macro-ideological discourses, such as the Crusades in the Middle East or, as part of the relationship between States and religious institutions, but also a form to shape social relationships within local communities and a form of political and ideological control among those who profess a different faith of the rulers.

The main aim will be to explore the possibilities and limits of archaeology to study religion as a social phenomenon in past societies and to shape its importance in different case studies within a long-term view. The session will discuss religion both in its importance as a state institution and as a social form of identification within local communities and minority religions, and also the conflicts derived from the contact of those spheres, as for example when internal transformations from rationalization of some groups within major religions are produced. The first groups were targeted by stigma and discrimination, especially when religious differences are correlated with other instances of social identity, such as ethnicity. The second have been agents of change at different times, causing not only cultural reforms, but also economic, political and social transformations. Both are needed to understand the role of religion as a part of social identity, and to serve to understand the cultural complexity of the Middle Ages and beyond.

Which kind of material record is available for the study of these groups? What are the main differences of minorities and radical versus majority beyond the cultural? How does religion reinforce their identities in relation to others? These are some of the questions we intend to address in this session.

TH6-14 Abstract 02
Dealing with identities. Archaeological traces of Muslims and Dimmi-s in the Middle Mark

Author - Buono, Mania, 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 inscription of archaeological data to Berbers, Muslims and Christians in the north of the Middle Mark of al-Andalus. I present both, the results of archaeological surveys integrating data from the Archaeological and Culture Territorial Service of Soria, Castilla-León, and the analysis of materials preserved in the Munumento Museum (Soria) used in my Phd dissertation. I will pay special attention to caves sites such as Milto de Medinaceli and Conquezuela. These sites reflect the different powers successively overlapped and the problems concerning the inscription of identities bear in the complex Middle frontier between 8th-11th centuries.

The settlement of Umayyads in the north-west of the Middle Frontier is a process quite well established though written Islamic sources: between the 8th and 9th century different Berbers Images, clients of the Umayyad’s lords were settled in this area, years later, after the nomination of Abd al-Rahman III (912) as Caliph, this area was rebuilt and become the most active frontier with Christianity in al-Andalus between the 10th and 11th century. However, the explicit recognition of these realities raised delicate problems concerning their chronological and religious-identitarian inscription.

In one hand, the settlement of Berbers Images in this area, as well as, clients of the Umayyad’s lords raised with the problem of their adscription to a specific material culture. What kind of archaeological data can we use as cultural markers of this specific ethnicity? What interpretation problems present these indicators in order to identify Berber population? Are they fully assimilated with the Umayyad’s elites? Can we demonstrate the Islamization trajectories of this population?

After 946, Medinaqal was built and became the administrative centre of the Middle Mark, while the nearby fortress of Gormaz became the military centre, the starting point for the northern expeditions replacing the Alzama fortress. This area became a strategic frontier based entirely in a network of fortress and towers dependent on Umayyad power, and the expression of power of the Umayyad Caliphs based on Ibad identity. However, the new Muslims’ rulers were not installed over an uninhabited areas, terra deserta, but rather over a territory previously politically-irrelevant. The previous indigenous inhabitants were mostly “Christians”. The new power granted them a protected subordinate place in society through the status of dhimmi-s or protected people. The traces of these people are almost invisible, barely rock-cut tombs sites. These ones are not associated with artificial or osteological remains, thus making it impossible to determine accurate chronologies, so they merit to be integrated in a collective debate.

TH6-14 Abstract 03
From hand to mouth: dietary perspectives on religious minorities in Medieval Portugal

Author - Toso, Alice, University of York, York, United Kingdom (Presenting author)
Co-author(s) - Dr. Alexander, Michelle, University of York, York, United Kingdom
Keywords: Diet, Isotopes, Medieval Portugal

Presentation Preference - Oral

Diet had an important cultural and symbolic meaning in medieval societies. In particular, the preparation and consumption or avoidance of certain foods played a significant part in the construction of identities by social status, age, sex and faith. This is especially intriguing for the multi-faith societies of Medieval Iberia were Christians, Muslims and Jews co-existed during the medieval period. In multi-faith societies co-existence and rulers' religious tolerance towards minorities are intricately 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 contemporary 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.
TH6-14 Abstract 04
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 throughout the Catholic world led to its official creation in Portugal in 1386, aiming at the surveillance of the ‘purity of faith’, the suppression of heresy, and the discipline of religious beliefs and behaviors, essentially related with the Jewish presence in the Portuguese territory. In 2007/2008 an archaeological excavation took place in approximately 12% of the so-called Jail Cleaning Yard, the dump of the Évora Inquisition court. Having as starting point this archaeological excavation, this work aims to discuss several archaeological traces on how the Catholic Church developed mechanisms currently understood as radical to deal with the presence of religious minorities. Twelve adult individuals in articulation (3 males, 9 females) were recovered and a minimum number of 16 were identified from a commingled context. The absence of funerary deposits 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 walled. 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 shown 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, since 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.

TH6-14 Abstract 05
Archaeology of the Spanish Civil War: Is new data contributing to a deeper understanding?

Author - Dr. Perez-Juez, Amalia, Boston University, Madrid, Spain (Presenting author)
Co-author(s) - Dr. Monin, J, JUDEMA, Madrid, Spain
Keywords: archaeology of conflict; Spanish civil war; trenches
Presentation Preference - Oral

Between 1936 and 1939, Spain was blazed out in a Civil War, a prelude of what the whole of Europe would go through only months later. After almost 40 years of dictatorship, and the unanimous yearning to reach a peaceful transition into democracy, archaeological research of Civil War sites was all but silenced until just recently. In 2000, our team undertook one of the first excavations of Civil War sites in Spain, “Casas de Murcia”, part of the lines of defenses built by the Republicans to protect Madrid. Trenches, bunkers, machine gun nests, and other features were rapidly built and fiercely occupied for almost three years in order to stop Franco’s armies in his advance towards the capital. The site, which was not subject to protection at the beginning of the 21st century, was completely excavated and researched, and the results were fully published and presented to the public in a temporary exhibition. The enormous amount of information that emerged from that excavation surprised everyone. For researchers, it meant more data to add to the documents and recovering material culture; for the general public, it became a way to reconnect to the landscape that had witnessed part of a family chronicle; for politicians, it was another good media story. No one was to remain indifferent to what an excavation from this time period could yield.

In the fifteen years that have since passed, many things have changed in Spain regarding the Archaeology of the Civil War. Legislation protects the sites, excavations are conducted in a variety places, mass graves have been unearthed and bodies identified, and objects of all kinds have been recovered and restored. But these accomplishments, far from bringing the population closer to understanding this part of history, have re-opened wounds of the Civil War. The archaeology of recent conflicts is a complex topic. The research becomes intertwined with emotions and fears, and personal stories come to life in a setting of loss and destruction. Why are we not using these new data to overcome differences? Why is the Archaeology of the Civil War viewed as partisan, biased, and provocative? Our paper will present the evolution of the research of the Spanish Civil War, beginning with our first excavations in 2000 and exploring other projects. It will also serve as a starting point for debating different approaches to archaeological research of recent conflicts, and will briefly compare the situation in Spain to other similar European and American cases.

TH6-14 Abstract 06
The Fact of the Mother Goddess

Author - PhD Sozer Kolemenolu, Selma, Marmara university, Istanbul, Turkey (Presenting author)
Keywords: Religion, Art, Archaeology, Mythology, Philosophy
Presentation Preference - Poster

INTRODUCTION-PURPOSE: In this study, we show that the terminological context of the Mother Goddess idols are dealt in the context of mythology, art, archaeology, philosophy and religion. The connections of the effects of the idol wares which the antique individual (the figures) had left on their social structures, were found by means of exploration. The idol message is thought as symbolic evidence and its context is tried to be presented.

MATERIAL-METHOD: The typological phases of the Mother Goddess idol wares in the history of culture, as evidences made of different materials in various museums in Anatolia, were classified. Particularly, the wares which were taken out in the Neolithic period, was tried to be correlated with the archaeological narratives, the social events in the world conjuncture through philosophy, religion and mythological accumulation. The Mother Goddess wares were evaluated in compliance with the environment which they emerged in rules, principles and style as well as the social structure they addressed to. In describing the human being, we widely observe that he is connected with the mythological legends and holy scripture doctrines. FINDINGS: The role of the semantic integrities in the history of religions and their connections in the holy scriptures, may be needed to be examined. We think that some critical scientific theories in art, religion and archaeology may have correlation with the idols. By taking the interpretations in the holy scriptures and the mythologies, their theses and antitheses were frequently compared. The fixed most important topic was that the observability of whether the abstract symbolic knowledge which is necessary in knowing 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), (icon was observed to be the abstract, emotional gap which made the life harder in the human structure. The concepts such as the Mother Goddess idols and Pharaoh are the explanations of this empty space as signs and symbols. This determination is that by scrutinizing the existence which bear critical meanings beyond time, there may be an explanation of the life prescription of the history of humanity. It is seen that this prescription is the Noble Quran which constituted an important bridge between the past, which sheds light to the future which have been examined throughout the ages, with the future.
TH6-15 Abstract 01

Saint-Denis, Archaeology, territory and citizenship

Author - Director Rodrigues, Nicole, Unité d’archéologie de la ville de Saint-Denis, Saint-Denis, France (Presenting author)

Keywords: Archaeology, Citizenship, Territory

Presentation Preference - Oral

Saint-Denis, one of the major sites of French history is also a suburban town, an area that suffered the 13 November attacks. The Saint-Denis, an area that suffered the 13-November attacks in Paris, is under a new wave of attacks. In order to change the focus of this “presidential” session to explore the contribution of Archaeology to promote “convivencia” among different communities in multicultural environments, an issue that also matters because it deeply relates to the practices that EAA should encourage. The term “convivencia” is used in Spanish because this was the concept developed in medieval Iberian Peninsula to denote the coexistence, partially cooperative partly conflictual, of Jewish, Muslim and Christian communities (http://www.mpweberin.mopg.de/workshops/an/Convivencia.html). “Convivencia” means more than living together; it is practicing coexistence between communities and actors in contexts of cultural heterogeneity. Critical accounts of “convivencia” should acknowledge that these actions do occur amidst conflicts and networks that are also crossed by asymmetrical relations of power. The other regard of this session is “Saint Denis”, a territory that suffered the 13-November attacks, where the Unité d’archéologie has developed activity under the aim of using the archaeological foundations of the town to create a shared identity and neighborhood. Archaeology, because its relation to materiality, memory and identity, is useful to mediate in these conflicting contexts. It unites dissent, creates basis for inter-subjectivity, promotes dialog among agents and communities, and provides means for public and community activism.

Session aims to explore these capacities and reflect about contradictions inside these practices. We should both consider theoretical approaches and identify good examples of projects that could help to strengthen this application of Archaeology and be helped by our recognition. Cases studies can derive from any sort of cultural heterogeneity and communities interactions.

TH6-15 Abstract 02

Deploying First Nations to live with Muslims. A Basque reflection on existence and coexistence

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

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Keywords: Archaeology for convivencia

Presentation Preference - Oral

On 23rd October 2015 last, several unidentified persons threw rubbish in the mosque of Llodio (Araba). Several days later, a hooded person threatened and insulted those who were congregated inside. Nobody was hurt but 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. This attitude is greater with respect to oppressed people with whom we empathize and whom we support. Indifference is the prevailing attitude with those groups that are not defined politically. Apathy turns into hate when certain tragic events, intensified by devastating media coverage, at precise times shatter peaceful coexistence. The Basque Country is also going through other internal processes focused on seeking 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 culture capital, the main slogan represented was peaceful coexistence. The concepts of coexistence and culture come together in a programme in which archaeology is not represented. As Basque citizens and archaeologists, we want to avoid the opportunity of debate offered by this session to reflect on the potential of the mediation of archaeology in processes of coexistence and perspective-sharing in our geographical environment.

On outlining one of the characteristics of the Basque idiosyncrasy with respect to the “other”, we found that one of the principal characteristics generating empathy is the identification with a particular condition of this social subject. Therefore, we suggest that one of the paths towards sustainable coexistence is the generation of emotional connections with the peoples under debate. In synthesis, we have to look for cases that enable us to identify ourselves with the “other” societies with whom we coexist or at least obligation ourselves to understand them. A common denominator could be emigration, a very well-represented aspect in the Basque past and which today defines Muslim communities. And one of the most paradigmatic examples of Basque coexistence is the case of fisheries of the North Atlantic, which involved the interaction between Basques, Europeans and Canada’s First Nations. In the proposed paper, we will reflect on the manner in which the socialisation of this example can generate mechanisms of proximity and tolerance between the Basque and Muslim peoples.
TH6-15 Abstract 04
Integrating Archaeology at Vitoria-Gasteiz (Basque Country): terrorism, immigration and peace

Author: Professor Xorru, Ayer, University of Basque Country, Vitoria-Gasteiz, Spain (Presenting author)
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Keywords: Archaeology of Contemporary Past, Community Archaeology, Integrating Archaeology

Presentation Preference - Oral

In the late 1950's and early 1960's the small Basque town of Vitoria-Gasteiz became an important industrial center that attracted thousands of immigrants from other Spanish regions. Although it was considered by the franquist regime as a model of 'social peace', the city saw the emergence of armed resistance by ETA and a significant labor unrest. Strikes of 1976 ended in a bloodbath. The crackdown on March 3, 1978 is a milestone for the city's population. The arrival of democracy in 1978 led to the conversion of Vitoria-Gasteiz in the capital of the Basque Autonomous Community. This region has a nationalist majority claiming independence for the Basque Country or at least converting Spain into a federal state.

In recent years the city has experienced a second wave of migration, with newcomers from the countries of Eastern Europe, Latin America, North Africa and sub-Saharan Africa. With 250,000 inhabitants, the Basque capital has become today in a multicultural urban space. As in the 1960s, it is a challenge to integrate these immigrants. A challenge not without its problems. Despite the effort made by the administration (social support) and civil society (platform 'Gora Gasteiz') at urban level they are creating real ghettos. A rejection of initiatives such as the construction of mosques (especially those working-class neighborhoods that had housed the first immigrants of the late twentieth century) has been observed.

At this very reality of globalization, in Vitoria-Gasteiz it is being lived another equally important process. The cessation of armed activity by ETA in 2011 has given way to a period of peace building and collective memory through Public policies of memory trying to do justice to the victims of the Franco's regime (1936-1975), 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 Francoism at community centers... As a case study we will present the example of the district of Coronacion, erected by the dictatorship in the early 50's to accommodate Spanish immigrants. Today Coronacion 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 neighborhoods across the Urban Heritage.

TH6-15 Abstract 05
Uncovering convivencia from the dark depth of modernity: toward intercultural rights to heritage

Author: Orlando Barban, Francesco, Castr Di Lecce, Italy (Presenting author)

Keywords: decolonial theory, indigenous archaeologies, intercultural human rights

Presentation Preference - Oral

In 1492 the last Islamic kingdom in Spain was taken and from the reconquista of Granada began the conquest 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 synonym 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 differences seemed to be unavoidable with the right way of social relation, cultural practice or economic development. Heritage conservation emerged within the context of imagining the national communities and formalizing imperial powers in XIX century. International protection of heritage followed this ambiguous origin and it has been made possible in the second half of XX century thanks to its institutionalization and bureaucratization. Such a regime of heritage practice has reached its highest recognition in the last few decades through the deployment of multicultural policies within the context of the neoliberal affirmation of cultural diversity. But the same politics have made it possible the organisation and visualization of a world indigenous resistance based on the cultural relation between communities and the lands, in which the pre-modernity, that is the pre-colonial tradition, is articulated with the global context and participate in it by a counter-hegemonic use of universal categories such as human rights and heritage conservation.

Archaeology is a methodology but it is also a theoretical source for linking past, present and future. It makes possible to give an alternative account of human rights trope by showing the resistance exercised by whom have suffered those rights as an imposition, and it allows local communities, minority 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 rehumanization 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 existence.
Experimental Archaeology: Techniques and Technologies

Testing twined clothing in Mesolithic

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. The found two specimens were made of time base. They were compared with other extant European twines of similar or close periods. Three pieces of rectangular shape were produced, in order to test some technical and functional questions.

During the speech results of the latest experimental works conducted at the Institute of Archaeology, Nicolaus Copernicus - Oral are welcomed.

Prehistoric drilling and bead manufacturing: Experimental approach and cognitive insight

This paper discusses experiments in drilling different materials undertaken with the aim of testing several practical issues. A series of flint micro-borers were produced and used for manual and mechanical drilling (with a pump drill) of various samples (mainly prepared thin plates) of minerals and rocks, ranging in hardness (on Mohs scale) from 3 (marble, limestone, calcite) to 6.5 (amazonite, nephrite). Biomaterials were also used in the experiments: aragonite (shells) and apatite (bones). The initial attempts at bead production involved the manufacture of 16 delicate beads from 5 different materials using fine sand and water abrasion. Though not conclusive, the experimental work is instructive in many of the parameters, procedures and technical details of prehistoric drilling and bead manufacturing. The experience gained has led to a more holistic interpretation of archaeological drilling toolkits, as well as a better appreciation of the particular skills and know-how of the prehistoric jewellers.
In this paper, we will present the results of five-year Experimental Archaeology Project on making Eneolithic pottery, based on our research in the Kojiladener–Gumelnita–Karanovo VI tell settlement from Sultana-Malu Rou, south-east Romania. In our work, we have experimented with different hand-making techniques such as building the vessels from one lump of clay, cooling and also moulding. Experimenting with the moulding technique came as a necessity in our effort to understand the presence of large and shallow plate-like vessels (sometimes larger than 50 cm in diameter), in the pottery assemblages characteristic of these past communities. To understand better the making pots process, we have also tested a series of hypotheses regarding the types of clay, temper, modeling, burnishing, decorating, drying and firing.

Our work is backed up by petrographic and chemical analysis which not only helped us identify the local clay source as the raw material used by the Eneolithic potters but also gave us a more precise recipe for the mixture of clay and temper. The data collected over these years now help us to refine observations when studying new assemblages, thus leading to a better understanding of the pottery resulted from the excavation, and the people who made it.

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

TH6-16 Abstract 06
Experimental studies on ceramic provenance from southern Iberia

Author - Dr. Krueger, Michal, Adam Mickiewicz University in Poznan, Poznan, Poland (Presenting author)
Co-author(s) - Bartkowiak, Maria, Adam Mickiewicz University in Poznan, Poznan, Poland
Keywords: archaeometry, experimental archaeology, pottery
Presentation Preference - Oral

The undertaken research addresses a problem of provenance of ceramic assemblages from southern part of Iberian Peninsula in the early Iron Age, particularly differentiation between local and foreign origin of so called Tartessian pottery through experimental studies. This investigation took into consideration mainly the technological aspects of pottery production and focused on both different applied techniques (hand-made and wheel-made) and the morphological and typological diversity of analysed assemblages. The proposed paper makes an attempt to examine the Tartessian ceramics not from a traditional typological posture seeking the chronological sequences; the dominant approach used in this research is based on archaeometric up-to-date methodology, and thereby shed a light of these, still relatively weak recognized aspects in the study of the Iron Age pottery from the southern part of Iberian Peninsula. To achieve this goal a non-invasive X-ray spectrometer has been used in order to determine the chemical differences between ceramics from the local sites of Lower Guadalquivir region. The integral part of this study is an experimental examination of clay paste of sherds, samples of local clay sources and raw material obtained from sites surroundings in order recognize the processes of forming the particular types of vessels and establish the condition and temperature of the firing. All analyzed potsherds and clay samples with various added inclinations 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 500°C; the 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, Als-Marseille Université, Ae-en-Provence, France (Presenting author)
Keywords: Antiques bronzes, Colours, Swatch
Presentation Preference - Oral

As part of my thesis, entitled ‘The colours of bronze ceremimonial 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 varied colours of antiques bronzes, and to reate the original colours of Graeco-Roman bronze furniture. I intend to change the presumed image of ancient bronze as green, lacking for evidence of polychromy and a spectrum of copper alloys. This swatch combines the technical processes of the lost wax method and the addition of polychrome bronze surfaces (via patina and inlay). I intend to use this study as a repository both for my research and for other studies related to bronze production. Bronze is an alloy of copper and tin, lead may also be added. The objects examined in this study have a variable percentage of metals, and because of this the colour of the alloy differs. The colour of the alloy can be maintained by polishing but it is also possible to give a patina to the surface of the bronze with a reagent. Other metals and alloys (silver, gold, Corinthian bronze) can be imitated by damaecene or by plating to create polychromy 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 Britian, technique
Presentation Preference - Oral

The paper will discuss the production technique of the seamless Romano-British glass bracelets that has been reconstructed by working with the modern glassmakers and through the close inspection of the British glass bracelet fragments. The production of the rigid annular objects composed of coloured glass in Britain is dated to the mid-1st century AD, starting with the Roman invasion in AD 43. Prior to that, Britain had no history of glass bracelets’ production, yet the late Iron Age Continental glass bracelets have been attested throughout Britain, albeit on a smaller scale. The close inspection of the fragments by the author had hinted at the possibility that the Roman-period British glass bracelets have been produced in the similar manner as some of the La Tène Continental bracelet types. This has been confirmed by the experiments conducted by the author with the experienced glassmaker, who specialises in making historical beads and pendants. Further experiments shed light on the production and application of the decorative features to bracelets. Most British annulars have either twisted cord decorations or trails with curved terminals. The common theoretical opinion is that cords and trails were marveled 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 - Rimikis, Virginija, Vilnius University, Vilnius, Lithuania
Co-author(s) - Luchtinas, Alaksija, 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′ies, 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 led by experimental archaeologists and ancient technology experts, in cooperation with craft and experimental archaeology organizations (workshop-galley “Amatu galerija”, workshop-living museum “Senųjų amatų dirbtuvės”, club for craft reconstruction “Dvaro meistrai”, museum “Amatų gildija”, workshop-living museum “Senųjų amatų dirbtuvės”, club for craft reconstruction “Dvaro meistrai”, experimental archaeology club “Palaižė”), as well as some museums (Archaeological and Historical Museum of Kupiškis, National Museum of Lithuania at Rumšiškės). 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 oral exam, which contains a presentation of a particular committed archaeological experiment. Aspirants 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

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.

TH6-16 Abstract 13
The restructuring of the Artefact Study

Author - Rybka, Rita Zofin, Nicolaus Copernicus University In Toruń (NCU), Toruń, Poland (Presenting author)
Co-author(s) - Kucypiar, Pawel, Nicolaus Copernicus University In Toruń (NCU), Toruń, Poland
Co-author(s) - Kazimierczak, Ryzard, Nicolaus Copernicus University In Toruń (NCU), Toruń, 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 (anthropological) subjects of interest, in general, the need to use ever-growing means for the expansion of knowledge about the past.

The main objectives of the investigations were planned for and are carried out in three major areas: Conducting experimental research related to the reconstruction of material culture in prehistoric, medieval, and early modern periods focused on the restoration of used techniques and known technologies.

Interdisciplinary studies on building, equipping, and organizing basic craftsmen workshops. Comparative research into archaometric data acquired from archaeological objects employing the results obtained by experimental methods.

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 tourists.

TH6-16 Abstract 12
Microwear analysis on early medieval combs

Author - PI, Nathalie, Vrije Universiteit Brussel, Gingelem, Belgium (Presenting author)
Co-author(s) - Tyts, 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 Serenyov, applied on lithic objects, but later it was also used on other materials, such as bone and antler. However, the application of early medieval tools on antler with the aim of making combs was not conducted yet.

The method contains three stages. First, starting from a functional hypothesis, an experimental program is established. In this stage combs are processed respecting both the type of raw materials and technical transformation sequences. Secondly, usage traces, developed on the experimental samples and archaeological samples are recorded with low and high power magnification. Finally, the traces on the experimental and archaeological objects are compared. The interpretation of the production techniques in chronically and regional different contexts can so confirm or refute typological subdivisions. The maintenance of local techniques can be explored, distinct ruptures in used techniques may be associated to other context-based roles, as social, economic and ideological meaning of a material.
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 remains in the present state of research the only technique that can be definitely attributed to the small middle Neolithic communities called Lumea Noua cultural group. Being the only material evidence that could lead to the configuration of this cultural aspect for the moment, various archaeometric analysis were made on a large number of samples, in order to extract all the informations regarding the technology that has been used to produce such painted decorations. Based on the material analysis, this paper represents an experimental foray into the manufacturing and firing of painted pottery, that we know so little about, in the Transylvanian Middle Neolithic.

The starting point was a detailed analysis of typical installation discovered in the painted pottery cultural areas that have evolved in the Transylvanian territory, 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 Siah, Gvidas, Kaipelïda University, Kaipelïda, Lithuania (Presenting author)
Keywords: Flint awls, Mesolithic and Neolithic, Trascology
Presentation Preference - Poster
It is known that flint awls are a not a common phenomenon in Stone Age inventory. This material has not have a separate sub-group in East Baltic region so far. Nevertheless, there were carried out several classification works, experimental and trascological 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 experimentions by using different kinds of animals’ skin: bison, deer, roe deer, beaver and mink. Skins and furs, experimentions 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 faunal processing. The experimentations 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 orientated to specifically one material analysis.

TH6-16 Abstract 17
Expense vs. Effect: An analysis of selected variables that affect the production of cost surfaces
Author - Ossipowicz, Grzegorz PhD, Institute of Archaeology, Nicolaus Copernicus University, Toruń, Poland (Presenting author)
Keywords: Cost Surface, GIS, Site Catchment analysis
Presentation Preference - Poster
Cost Surfaces Analysis has become a common, if sometimes controversial, tool within archaeological study. Today, there are numerous GIS packages that allow the creation of cost surfaces and least cost paths at the “push of a button” (ArcGIS, GRASS, Idrisi). However, this is often at the detriment of hiding the technicalities of the program’s method, which may not always be ideal for archaeological research. As such it is often advised that these pre-prepared systems should not be overly relied on (Herzog, 2013, 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-Sáka, Z. & Dominyg, g, 2012, Determining minimum hiking time using DEM, in Geographica Nepoamicae Anul 82, pp:124-129.


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, fat oil and tye are examined. What is more, two large projects related to experimental construction of a Mesolithic hut and a gallo-italic 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 aztech made of stone and horn. We hope, that these experiments will prove an excellent opportunity to make a replica of a prehistoric dugout boat.

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)
Keywords: experimental archaeology, Stone Age, tools
Presentation Preference - Poster

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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
- Initiated an internal strategic three-year plan for the Institute
- Supported and been a key partner in the all-Ireland Archaeology 2025 strategy review of the archaeology sector
- Represented our members views to government and public agencies
- In addition to our own Annual Conferences, the IAI held our 3rd annual Archaeofest heritage outreach event for the public in the centre of Dublin, which celebrated the work of archaeologists across Ireland and Northern Ireland
- Hosted and organised a variety of CPD events

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THE COMMITTEE ON PROFESSIONAL ASSOCIATIONS

Friday, 2 September 2016, 14:00-16:00
Faculty of Philology, Room K. Donelaičio

Author: Spencer, Mark, Saxion University, Amsterdam (Presenting author)
Co-author(s): Wait, Gerard, Nexus Heritage, United Kingdom
Co-author(s): Hinton, Peter, Chartered Institute of Field Archaeologists, United Kingdom
Keywords: Committee Meeting, Professional, Associations
Presentation Preference: Committee / Working Party meeting

The Committee on Professional Associations meets annually during the EAA Conference. It will reflect on the developments in the past year. Members will present on the situation in their countries and organisations. The committee sees a great potential for Professional Organizations to improve the place and recognition of archaeologists in society by promoting professional conduct and behaviour in the different countries and Europe as a whole. Furthermore it sees a role for these organizations to take on an advocacy role to enlarge the awareness of the values that are inherently connected and make cultural heritage. It aims to work in close cooperation with the board of EAA and therefore to further the aims of this organisation. During the committee meeting in Glasgow it looked for possibilities to stimulate the growth of Professional Organisations within European Archaeology. This exchange of ideas and experiences will be continued during this meeting.

THE COMMITTEE ON PROFESSIONAL ASSOCIATIONS

TH6-17 Abstract 02
Professional archaeology without borders

Author: Peter, Hinton, Chartered Institute of Archaeologists, Reading, United Kingdom (Presenting author)
Co-author(s): Wait, Gerry, Chartered Institute of Archaeologists, Reading, United Kingdom
Keywords: Association, CIfA, Professional
Presentation Preference: Oral

Archaeology should be without borders, and professional archaeology must be without borders. Professionalism depends on an individual’s commitment and accountability to an ethical code, and that involves more than just complying with relevant national legislation. The professional is therefore an international phenomenon. In many disciplines, professional institutes have members in many countries – and professional bodies are either multinational or work in strategic partnerships across borders.

Do people join organisations as members anymore? Or do they support campaigns and movements on a topic-by-topic basis, depending on electronic media to collaborate. If present social trends continue, membership of associations generally will continue to fall, with many either running out of money and ceasing to be effective and influential, or urgently needing to find new purposes. Professional associations are different, probably because membership is the price of professional recognition.

Since the EAA meeting in Glasgow in 2015, the Chartered Institute for Archaeologists has been in discussion with other professional associations for archaeologists and other organisations with an interest in professionalism. This paper will report on some of the ideas and plans, and will ask session participants what they would like to see.

THE COMMITTEE ON PROFESSIONAL ASSOCIATIONS

TH6-17 Abstract 03
Professionalising archaeology in Europe – 2016: a year of progress

Author: Dr. Wait, Gerry, Witney, United Kingdom (Presenting author)
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Keywords: Archaeologists, Foresight and Horizon Scanning: the future of the Partnerships, Professional associations
Presentation Preference: Oral

Do people join organisations as members anymore? Or do they support campaigns and movements on a topic-by-topic basis, depending on electronic media to collaborate. If present social trends continue, membership of associations generally will continue to fall, with many either running out of money and ceasing to be effective and influential, or urgently needing to find new purposes. Professional associations are different, probably because membership is the price of professional recognition.

Since the EAA meeting in Glasgow in 2015, the Chartered Institute for Archaeologists has been in discussion with professional associations for archaeologists in Europe and beyond, and other organisations that have identified a need for a professional association for archaeology in their country. This paper will report on some of the models for cooperation, collaboration or formal partnership under consideration, and will explore both the opportunities and difficulties of professionalising across borders. Subject to the meeting organisers’ timetable, CIfA hopes to be able to invite participants in this session to an informal reception at which weaker partnerships can be made.
SPECIAL SESSION ON BREXIT
Thursday, 1 September 2016, 11:30-13:00
Faculty of History, Room 211
Author - Cristato-Blado, Felipe, Institute of Heritage Sciences (Incipit, CSIC), Santiago De Compostela, Spain
Presentation Preference - Round Table

Following the Brexit referendum, and the development of trends towards criticism of the 'European (union) Project', the Executive Board of the EAA decided it must create time at the Vilnius Annual Meeting for a Round Table. The Round Table will discuss and examine the potential impacts of the Brexit vote for European archaeology, for EAA members generally and especially for our UK colleagues, whom we always hold in the highest regard.

We felt that urgent reflection on this matter was required, because it directly affects the EAA profile and its founding principles. The idea is not to precipitate or hurry. We need to pause, reflect and to look forward with confidence. Remembering that all societies are composed of individuals and what they create, it is a time to bring to mind that inclusivity, solidarity and friendship build understanding and trust. Trust encourages integration and unity of purpose.

One of the main focuses of the Round Table will address how we can foster cooperation, define how cooperation can strengthen links and create supportive networks and define how those links and networks can produce enduring engagement and achievement. Archaeologists generally, and especially those within the EAA, have demonstrated a significant capacity to work creatively across borders and archaeological (our members) have demonstrated the great value of fostering international, open endeavor and communities. We in the EAA are even more committed to this focus now. We will maintain our enthusiasm for imagining a more inclusive, solidarity and stronger Europe and a more representative EAA in that context.

The aim of the Round Table will be to make room for the collective consideration of how EAA should react and respond. Discussion will aim to define how to position the EAA in this new and complex cultural, social and political environment, recognizing that recent events in the UK are reflective of more widespread processes in European societies that we must recognize. This is a moment when an organization such as ours needs to establish and align its position with clarity, drawing on the very significant European projection in this challenging time.

Because of the immediacy of the decision to hold this Round Table, we are still organizing its format and speakers. However, we want to stress that everyone is welcome and we hope that members will contribute actively to the discussion. The EAA must be an 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.

We hope that this Round Table will be not only an opportunity to discuss urgent issues, but also an opportunity to shape the future of archaeology in Europe.

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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 causes, means 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 categorization. Not only Polynesian'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.

The earliest appearance of agriculture in Lithuania. Myths and reality
Author - PhD student Girkopole, Mindaugas, Vilnius university, Vilnius, Lithuania (Presenting author)
Co-author(s) - Matuszak Matuzeviciute Ken, Giedre, 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 recorded 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 dating of the artefacts found in the same contexts. In this presentation we report the re-evaluation of our current state of knowledge regarding the beginnings of agriculture in Lithuania. In our opinion, pollen data should be interpreted with caution while interpreting the beginnings of agriculture in the east Baltics. As the most reliable indicator of agriculture must be macro botanical remains of cultural plants and their direct dating using AMS, we present the newest dating results of cereal grains from the Neolithic Lithuanian settlements.

The dating results gives a new perspectives on the chronology of the earliest agriculture in Lithuania pointing toward re-evaluation the chronologies and the geographical origins of the early farming in the northern regions of the eastern Europe.

Animal iconology: identifying animal representations to aid archaeological analysis
Author - Dr. Grenard-Odmond, Jean-Olivier, Artefactopedia, 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 calling upon a multitude of other disciplines, both scientific ones and crafts. In this way, zoology has enabled archaeology to consider skeletal remains through a different light in archaeozoology; botany has enabled the use of plants and pollen in analyses; and experimental testing has improved through contact with various craftspeople. The same 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:

- Carne farming techniques in pre-urban 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 craftspeople in Italy during the Bronze Age using feline and bovine analysis.

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**GS Abstract 06**

**Calculated Harmony**

**Author** - Richter, Eva, Budapest, Hungary (Presenting author)

**Keywords**: geometrical evolution system, pattern-family, plating, form creation, mathematical thinking

**Presentation Preference** - Oral

Evolution system of a geometrical pattern group which includes the earliest motifs and symbols of the cultural history

In the end of the Upper Paleolithic a basic geometrical pattern-family was born. It can be originated back to the plating basketry technique and has been surviving up to the present. The earliest motifs and religious symbols, such as cherub, checker board, motorcycles and the forms based on meander hook (meander and swastika) belong to this pattern-group. Each can be found in the European Neolithic cultures in different proportions and is presented in varied style. The extensive spread of this pattern-family due to the geometrical rules of plating technology, and the cognitive processes of human brain. The both together resulted and determined the development of the same patterns in different cultures regardless of their location and their historical age. The rules of this technology are based on the laws of symmetry. The development of these patterns can be demonstrated within an evolution system, in which the particular patterns were born from a single basic structure step by step by little structural changes. In this universal pattern-family geometric form creation is based on counting, so the manifestation of mathematical thinking can be undoubtedly observed.

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**GS Abstract 07**

**Celtic cart graves from Brežice**

**Author** - Muro, Mila, Institute for the Protection of Cultural Heritage of Slovenia, Ljubljana, Slovenia (Presenting author)

**Co-author(s)** - Bavec, Uroš, Institute for the Protection of Cultural Heritage of Slovenia, Nova mest, Slovenia

**Co-author(s)** - Nadižbah, Barbara, Institute for the Protection of Cultural Heritage of Slovenia, Ljubljana, Slovenia

**Co-author(s)** - Carne, Mija, Institute for the Protection of Cultural Heritage of Slovenia, Ljubljana, Slovenia

**Keywords**: Brežice (southern Slovenia), celtic cart, late Iron Age cemetery

**Presentation Preference** - Poster

In the vicinity of city Brežice (southern Slovenia) Centre for the Protection of Cultural Heritage of Slovenia, Centre for Preventive Archaeology is carrying out a large-scale archaeological project new Hydropower plant is being built on the Sava River. A number of archaeological sites are under threat of being destroyed by different infrastructural building works and by flooding of huge areas in order to make the accumulation lake. Archaeological research of the area, started in 2008, is still on going. 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 - Sejmčice (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 Miha Glušin (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 fragmented. 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 alloy. Chronologically, the graves can be dated in Middle and Late La Tene period (L.C. D). Majority of metal artifacts are still undergoing conservation process, thus final chronological and typological evaluation and interpretation of excavated artefacts will be done after all the conservation works finished.

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**GS Abstract 05**

**Mosaics of Ulpiana**

**Author** - Assoc. Prof. Dr. Getinkeya, Haluk, Mimar Sinan Fine Arts University Istanbul, Istanbul, Turkey (Presenting author)

**Keywords**: Early Christianity, Mosaics, Roman

**Presentation Preference** - Oral

Archaeological excavations of Ulpiana began in 1953 and continued with intervals in the following decades. During these excavations, trapezoidal city walls and gates on it; cemeteries in North and West; urban villas and simple houses; workshops; military installation outside the city; three Early Christian churches and a baptistery were discovered. During early years of excavations, mosaics were discovered at two different locations. At the church on the Northern cemetery and a Roman villa. The latter is believed to be a church by some scholars. In 2012 excavations under my direction brought out to light an Early Christian baptistery. It was followed by the discovery of the main church of the city, most probably dedicated to the Saints Florus and Laurus, who were martyred at Ulpiana. Inside this church mosaics were discovered in 2013. They were unearthed until 2015.

Other than the newest series of excavations, destiny of the mosaics discovered earlier at Ulpiana is unknown. This work intends to 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 will be represented.

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**GS Abstract 04**

**Natural factors in early metallurgical production in Egypt and southern Levant**

**Author** - MA Blakobracka, Daria, Jagiellonian University in Cracow, Cracow, Poland (Presenting author)

**Keywords**: copper metallurgy, Egypt and southern Levant, environment

**Presentation Preference** - Oral

The origins of copper metallurgy in ancient Egypt and southern Levant is a subject which always has been in the scope of scientific interest. According to current knowledge it may be traced back to the Chalcolithic period and the Early Bronze Age. In the past, many scientists have put great effort to recreate its general picture. Recently more data have been gained which is useful in reconstructing this branch of craft. In the light of evidences objects made from copper might have been considered by ancient societies as one of the most valuable goods. Moreover, it can not be ruled out that this material might had special symbolic meaning.

Undoubtedly, environmental conditions played an essential role in shaping the picture of mining and metallurgical activities. They were responsible for the way ancient communities organized particular stages of metallurgical production. Due to similar landscape features one can see 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 will be presented.

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**GS Abstract 03**

**Keywords**: Current, east, Egypt, Hungary, metal, northern, southern, transportation, transportation, trade, trade routes

**Author** - Prof. Dr. Csujáti, Tünde, University of Debrecen, Debrecen, Hungary (Presenting author)

**Keywords**: Presenting author - Prof. Dr. Csujáti, Tünde, University of Debrecen, Debrecen, Hungary

**Presentation Preference** - Poster

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