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An urban craft in rural settings?
Svensson, Andreas

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TH1  INTERPRETING THE ARCHAEOLOGICAL RECORD

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

This theme is inviting sessions dealing with technology, survey, typology, statistics, 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 societys. Although birds – qua animals – are increasingly regarded as historical agents in their own right, the focus of the session lies on the intricate interplay of bird and human lifeworlds and behaviours. Through a diachronic approach the session hopes to explore how different modes of human existence are reflected in the nature of human-bird interfaces, and in particular how different forms of human society and spatiality as well as different characteristics of bird behaviour and appearance imprint themselves in the materiality of human-bird relationships. Since the intersection of human and bird activities can be expected to differ severely from that of humans and other animals – for example mammals – the investigation of the human-bird interface ultimately provides a fresh angle to expose some new and so far unexplored aspects of past human earthly dwelling.

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

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

Thursday, 1 September 2016, 09:00-16:00
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

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

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

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TH1-01  Abstract 01
Introductory remarks: the study of human-bird interfaces as archaeo-ornithology

Author: Hussain, Shumon, Faculty of Archaeology, Leiden, Netherlands (Presenting author)
Co-author(s): Kost, Catrin, Munich University, Munich, Germany
Keywords: human-bird interfaces, ontology, symmetry
Presentation Preference - Oral

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

TH1-01  Abstract 02
Gazing at owls? Strigiformes as important parts of East-Central European Gravettian lifeworlds

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

**TH1-01 Abstract 06**

**Spirit Birds at Neolithic Çatalhöyük**

**Author** - Professor Russell, Nirissa, Cornell University, Ithaca, NY, United States of America (Presenting author)

**Keywords:** Anatolia, Neolithic, zooarchaeology

**Presentation Preference - Oral**

**As they soar into the air and dive below the water's surface, birds inspire awe for their superhuman capacity to pass among earth, air, and water. They are often seen as belonging to the spirit world, or at least as messengers to and from that world. Whereas at earlier sites in the region birds made a significant contribution to human diet, at Neolithic Çatalhöyük in Central Anatolia their nutritional significance is small. Body part distributions suggest that for the most part feathers were more important than meat.**

**TH1-01 Abstract 07**

**The Human-Bird Interfaces in the Eneolithic period from Balkans**

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

**Co-author(s)** - Balascu, Adrián, National History Museum of Romania, Bucharest, Romania

**Keywords:** Balkans, Birds figurines, Eneolithic

**Presentation Preference - Oral**

**The aim of this paper is to explore the complex interaction between humans and birds in the Kodjadermen-Gumelnita-Karanovo VI communities (c. 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. Meriùta, Sultana, Vlaseast, Yunatala, etc.), in correlation with the zooarchaeological analyses, in order to identify the significance of avian species in the Eneolithic societies, both symbolically and economically. A special attention will be granted to some hybrid type of figurines that combines the anthropomorphic and zoomorphic elements of humans and birds because it reflects the best interface between both species, and it may help to decipher the particular biographies of those past communities.**

**TH1-01 Abstract 08**

**Birds were not one of the favourite issues in order to be used for rock paintings in the Iberian Peninsula. In spite of that, in the southern end of Spain it is focused the greatest amount of this kind of artistic manifestations. We are referring to the shelter of Taño de las Figuras (Benalup-Casas Viejas, Cádiz), which represents the 99.94% of the total bird representations of postglacial rock paintings in the Iberian Peninsula. In 17 square meters of wall surface 962 pictograms are represented, of which 208 are birds.**

In it, social groups in the Recent Prehistory capture the rich ecosystem of the former Laguna de la Janda and where birds had a leading role. Our research group has recently made a detailed investigation of these paintings, in which we have been able to ascertain the existence of very diverse species and scenes of ethology of these birds and an emphasis on bird flight, as a whole. Other scenes, even though they could be related to waterbird hunting, it is also possible that they have a shamanic ritual significance, in connection with life and death.

**TH1-01 Abstract 09**

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

**Author** - Frie, Adrienne, University of Wisconsin-Milwaukee, Milwaukee, United States of America (Presenting author)

**Keywords:** Birds, Iconography, Iron Age

**Presentation Preference - Oral**

Human-bird relationships in Early Iron Age Slovenia are marked by apparent contradictions – remains of birds are extremely rare in the zooarchaeological record as a whole, and completely absent from mortuary contexts that are otherwise notable for the deposition of animal remains. Yet birds are the most commonly represented animal in Early Iron Age art, and artifacts decorated in the local Slitia 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 Halstatt culture of southeastern Slovenia will be presented in the context of local human-bird interactions, and modes of depiction as well as contextual associations of avian imagery will be presented to elucidate how Dolenjska Halstatt experience and 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 10**

**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

**Keywords:** Iron Age, Mediterranean region, ostrich eggshells

**Presentation Preference - Oral**

**As this quotation of Xenophon (Anabasis 1.5.3) 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. Wall 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 Uburbun shipwreck. The shells were manufactured as amulets or beads for necklaces and earrings, or reworked into containers, flasks, cups and other vessels.**

**TH1-01 Abstract 11**

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

**Author** - Professora Lazarich, Maria, Universidad de Cadiz, Cadiz, Spain (Presenting author)

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

**Co-author(s)** - González, Juan Luis, Universidad de Cadiz, Cadiz, Spain

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

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

**Keywords:** birds rock painting, megalithic tombs, Recent Prehistory

**Presentation Preference - Oral**

**Birds were not one of the favourite issues in order to be used for rock paintings in the Iberian Peninsula. In spite of that, in the southern end of Spain it is focused the greatest amount of this kind of artistic manifestations. We are referring to the shelter of Taño de las Figuras (Benalup-Casas Viejas, Cádiz), which represents the 99.94% of the total bird representations of postglacial rock paintings in the Iberian Peninsula. In 17 square meters of wall surface 962 pictograms are represented, of which 208 are ostriches.**

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 emphasis on bird flight, as a whole. Other scenes, even though they could be related to waterbird hunting, it is also possible that they have a shamanic ritual significance, in connection with life and death.

By the same token, systematic prospecting works in the surroundings allow us to confirm the existence of a spatial pattern, where shelters with rock paintings are occluded in the territory in close liaison with settlements, necropolises, communication routes and catchment areas. Of special interest is the megalithic necropolis, located at the foot of the shelters (Necropolis del Cañam), due to its complex exchange of intervisibility between shelters with paintings (Arco and Tajo de las Figuras) and megalithic tombs.
Human-Bird Interfaces in Han-dynasty China as displayed through kingfisher-ornaments in graves

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

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

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

Author - Kurisoo, Tuuli, ZBSA/Tallinn University, Schleswig, Germany (Presenting author)
Keywords: Eastern Baltic, Late Iron Age, pendants
Presentation Preference - Oral

The aim of this paper is to discuss bird-related pendants in the Late Iron Age (800-1200/1250 AD) Eastern Baltic. The symbolic side of the human-bird relationship is usually approached through folklore, emphasising the importance of a Baltic-Finnic creation song in which the world is formed of eggs laid by a bird. In order to expand the current scope of interpretations, one should focus on archaeological materials and find contexts. Bird-related pendants are the most direct evidence in the material culture that indicate the special role of birds in these peoples’ worldview. Most of these pendants are cast copper alloy specimens that might reflect the use of kingfisher feathers and possibly other bird species. The presentation therefore aims to provide an overview of bird-related pendants from this time period and to present some new findings.

Toward an Archaeo-Ontology of the Bering Sea Region

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

Archaeological evidence from the Bering Sea region of the North Pacific indicates that prehistoric human inhabitants possessed a broad and sophisticated knowledge of birds and their behaviors. Reconstructing human relations with birds requires integration of multiple lines of evidence, including imagery, narrative, and human and animal remains. In this presentation, I discuss the archaeological evidence that humans attempted to mimic or acquire the abilities and physical attributes of some bird taxa, such as boxers (divers) and shorebirds. Human burials as early as the (1st) period (p. 400 CE) contain caches, masks, amulets, and ethnohistoric narratives indicate that select bird taxa mediated the human experience of coastal environments.

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

Author - Pit, Jacqueline, Bournemouth University, Bournemouth, United Kingdom (Presenting author)
Co-author(s) - Faider, Michael, Bournemouth University, Bournemouth, United Kingdom
Keywords: Human-bird interactions, Material culture, Zooarchaeology
Presentation Preference - Oral

Birds form an important part of human society, culture and subsistence both now and in the past. Combining analysis of faunal remains and material culture at archaeological sites, this paper examines attitudes towards birds between the Bronze Age...
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 datasets are limited, and provides complementary data where both types of evidence are present. Choosing to depict birds on items of value or significance, such as grave goods or 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.

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

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

Co-author(s) - Dr. Grau Sologestoa, Idoia, The University of Sheffield, Sheffield, United Kingdom

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

Keys: bird, goose, duck, goose

Presentation Preference - Oral

Geese and ducks have been used in Britain from late prehistory until the present day for a multitude of reasons including for their meat, their eggs, their feathers, and their fat. We know from historical sources that the economic and cultural significance of these animals has changed throughout Roman Britain, but archaeology can greatly improve our understanding of the use of these animals. 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. This paper explores examples of depiction and use of birds and value its symbolic role in the Iberian Culture. This poster explores examples of depiction and use of birds and value its symbolic role in the Iberian Culture.

Food for the Dead or Symbol of Rebirth?

Culinary offerings and incubated eggs from a Roman cemetery

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

Keywords: antiquity, archaeozoology, eggshell

Presentation Preference - Oral

The late Roman site of Otter-Olm provides a fascinating example of unusual 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. It 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 Otter-Olm showed signs that could indicate incubation, these alterations were not uniform, presenting a unique pattern of incubated and non-incubated spots. This could possibly have a taphonomic origin. It is for this reason that we’re now conducting experiments with unfertilized eggs. Due to better excavation techniques eggshell is also increasingly discovered on other archaeological sites. A deeper understanding of the taphonomic processes influencing their microstructure is vitally important in order to distinguish between the shells of hatchled birds and eggs that served as food.

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

Author - Dr. Iborra Eres, María Paz, ICBF Cultures of Western Mediterranean, 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 1995). The society was still predominantly agrarian, with agriculture and livestock husbandry constituting the basis for subsistence. However, the area was already incorporated in the Mediterranean trading routes in order to participate in these trading networks mainly with Phoenicians and Greeks (Bonet and Mata 2009; Sammarti 2009). This world was structured into a variety of territories characterised by a complex pattern of hierarchical settlement. The main population nucleus was the oppidum, a large site of around 10-15 hectares and the capital of the political area. The other settlements were small, and, depending on their size, are categorised as small towns, hamlets, farmsteads, hillforts or military establishments. Ritual sites, main sanctuaries and cemeteries, have also been found (Grau 2002; Ruiz 1996; 2000; Vives Fernández 2013).

Birds 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 platymyconcha), little bustard (Tetrao tetrix), gogeon (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 (Iborra 2004; Iborra and Pérez Jord 2013; Iborra, 2016; Castaños, 1994).

Bird pictures (figures) are usually represented on ceramic vessels, where they appear in different types of scenes. Scenes of hunting, war, funerary and domestic life. Although they can also be find others materials such as ceramic, sculpture and metal craft. This poster explore examples of depiction and use of birds and value its symbolic role in the Iberian Culture.
PETRIFICATION PROCESSES IN (PRE )HISTORY

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

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

However, what if the change occurs only in, for example, grave architecture or affects economic structures without a matching transformation in social structure? Is inconsistency and discrepancy in such processes what Clifford Geertz called the 'simultaneity of the non-simultaneous', thus leading to social tension? Moreover, how adaptable to change and thus how resilient is a highly petrified society? Are there turning points or 'points of no return' within processes of petrification?

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

TH1-02 Abstract 01
Petrification: a concrete comprehensive diachronic concept for past process comparison
Author: Dr. Huoglin, 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, then we use abstract concepts. To do this in a highly materialistic subject like Archaeology, a concept will have to be as concrete and measurable as possible. At the same time, it must be transferable to the intangible as well as to the - in our conception - magical minds of the people we study. Such a seemingly simple concept is petrification. Apart from its obviously Christian roots (Apostle Petrus) it describes increasing durability, weight and regularity in objects and processes.

My personal approach to petrification comes from the study of the reintroduction of stone architecture in the medieval period. This - according to M. Shapland - conscious choice of stone over wood as building material especially for churches, town walls and funerary monuments it is connected with other phenomena like the attempt to normalise calendars, the transition from oral to written in communication – a p. the production of books and especially of historic- 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 tend to be overstated. A diachronic perspective like this – attempting to ignore the barriers between epochs and to a certain extent time itself – will at the same time be a chance and a challenge. Petrification offers a concept with which we can observe, describe and compare processes without judging them emotionally or morally. The opposite concept of petrification could be called 'equilibration': 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. Gramsch, Alexander, German Archaeological Institute, Frankfurt a. M., Germany (Presenting author)
Keywords: material culture, petrification, tranformation
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 steadfastness are deeply linked to our understanding of both time and material culture. So this introductory talk addresses notions of time, change and material culture in archaeology: From traditional culture-historical archaeology to post-processualism and from spatial to cultural and other turns to current scientifically driven archaeology we as archaeologists need to connect the material culture we study to notions of transformation and development. How do we conceptualise periods of stability or ‘equilibrium’ vs. periods of change or break-up? How do we conceptualise periods at all? Which conceptual steps to we take to infer the petrification of a society from the archaeological record? Do we perceive petrification as one instant in a succession of distinct instants or as a process within a process?

TH1-02 Abstract 03
When did eternity end?
The so called downfall of Linear Pottery culture
Author: Dr. Biemann, Eric, Köln/Cologne, Germany (Presenting author)
Presentation Preference: Oral

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

TH1-02 Abstract 04
‘Petrified’ societies? An Egyptological survey
Author: Dr. Wasumth, Melanie, CH-Basel University, Rheinfelden, Germany (Presenting author)
Keywords: Ancient Egypt, Historiography, Petrification
Presentation Preference: Oral

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

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

TH1-02 Abstract 05
The hardness and the eternal: petrification of human images and social contradiction
Author: Dr. Marina Gallinaro, Marina, Rome, Italy (Presenting author)
Co-author(s): Vanzetti, Alessandro, University of Rome “La Sapienza”, Rome, Italy
Keywords: Human figurines, Society, Trans-Mediterranean perspective
Presentation Preference: Oral

The formalisation of human images as figurines can be seen as a relevant act of selfrepresentation, reflecting an idea of the human being and possibly of the sacred. In fact, as we may be experiencing even today, iconoclastic attitudes are important in allowing, or denying, space for peculiar representations, and the human one is a core problem in that sense. Anyway, when we can observe human representation to take place, we can easily recognize differences in materials implied, and in the size and context of the representation.
The quantitative analysis of the observable materials can suggest different attention was played in setting 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 archaeological 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 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 identifies reactive, shape-shifting architecture responding to the activities and energies produced through 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 solid and rigid structural shells. Drawing on later prehistoric and early medieval evidence from Britain, Scandinavia and the continent for comparison, architectural analysis will trace such patterns of “petrification” within the domestic sphere.
activity in the alpine uplands (suggested mainly by palaeoenvironmental proxy data), as if the earliest pastoral groups exploited much more ephemeral shelters. This observation opens a series of interpretative questions: What triggered the construction of these permanent structures during the Bronze and Iron Age? Was it just for functional reasons or was it also a way to facilitate ‘possession’ of this ‘marginal’ environments?

In this paper the origin of dry-stone pastoral structures in the Alps will be investigated. The available archaeological data will be reviewed, to assess the chronology of their diffusion and to find structural similarities that might mirror functional and ‘possession’ of this ‘marginal’ environments? 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 research on urban studies, sociology and classical studies tend to contradict such a straightforward separation between materiality and semantics of ancient cities. First of all, the meaning of public urban spaces as well as their basic definition and ideal-typical description were constantly changing both in time and due to human agency. Urban designs which were theoretically conceptualized for future generations could be fundamentally transformed by changing courses of real-life-cycles, losing their historical eminence in the process. Especially in the Greek colonies throughout the central Mediterranean, processes of petrification played an important role in the formation of urban communities. Archaeological evidence allows for the conceptualization of petrification as combining both resource management and social negotiation amongst the inhabitants of newly defined urban centres. Furthermore, our written sources need to be put into perspective using the results of archaeological investigations. Literary descriptions from the 5th century BCE onwards stand against ample archaeological evidence for a high degree of regional diversity in both centre and periphery of the Greek world. The present paper thus aims at comparing the different sets of sources and their respective interpretive potential. In a second step, the concept of public space in Greek cities shall tentatively be defined by looking at discontinuities and interactions between ‘petrified’ urban fabric, social space and normative discourses.

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

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

Presentation Preference - Oral

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

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

Keywords: amusement, space, toys

Presentation Preference: Oral

There are no any written sources left that could tell us anything about how and where people living in the cities situated on the south Baltic coast used their so called free time. Archaeological sources rarely found in these places are the only evidence of the amusement present there. The aim of this paper is to present the model of the ludic space in those cities constructed on the basis of archaeological finds of toys and play accessories. There is visible difference on how was treated public and private space, so this will be the main categories used in this model.
This paper concerns Scandinavian gaming pieces from the Vendel and Viking periods (c. 550-1050 CE). The main focus is on the raw materials used but also on questions of chronology, typology, and distribution. Gaming pieces can be made from a wide variety of exclusive or eye-catching materials, such as glass, amber, ivory, walrus tusk and horse teeth. Most commonly, however, gaming pieces are described as being made of unspecified bone or antler. A recently conducted study has made clear that a majority of these are in fact made from whalebone, which also could be considered to be an exotic and scarce product.

The aim of this paper is both to shed some light on the vast number of gaming pieces in Swedish museums, and also to discuss what implications the study of the raw material has for our understanding of medieval gaming culture. There are also considerable implications for our understanding of the use of resources and the importance of coastal landscapes during the period in a broader sense. It is most probable that the whalebone gaming pieces were traded from the north Norwegian coast to large parts of central Sweden and beyond. The large geographical distribution of whalebone artefacts bears witness to developed interregional trading networks in Northern Europe, already during early medieval times.

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

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TH1-03 Abstract 09

Early medieval Sandomierz Chess Set: confrontation of old and new excavations results

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

Keywords: Archaeology, Games, Chess, Objects

Presentation Preference - Oral

The chess defined as „Sandomierskie” were unearthed on the stand no 7 in Sandomierz on the Old Town Hill. According to the tradition passed over by Jan Długosz (polish chronicler: 1415-1480), this place is considered to be the oldest part of this town. From the year 1598 on through the period of 10 consecutive years systematic archaeological 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 a rare example of on the territory of the Early Middle Ages Europe. The area then examined, not widenable due to the requirement of finishing the works, allowed to determine the place of the discovery as a small, modest half undug. In the material gathered at that time the chess figures were the only such spectacular finds, others being ceramics from the 12th century. Such a picture of the circumstances of finding The Chess of Sandomierz was dominating in the professional literature for long years constituting a source of many hypotheses and speculations on the reasons of finding the figures on such an unexpected site. The hut being the only dwelling place in this area did not belong to any settlement and was a phenomenon of its own difficult to be interpreted. It was supposed to be a poor half undug of a small size in which two almost complete sets of chess figures from the Early Middle Ages were found. For over half a century the site of discovering the chess was not researched archeologically. Undertaking the verifying works in the year 2014 was connected with the willingness to recognize a wider scope of the problem of chronology and the space relations of the stand no7 and to determine the context of the appearance of the Chess of Sandomierz in this area. During the two research seasons (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 as a kind of a manor house rather than an ordinary dwelling place. The discovery of a vast homestead or a manor house which was burnt down round 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 - Wolańska, 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 functions based on their material characteristics, but also on their archaeological context and on the current knowledge about medieval games.

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TH1-04 Abstract 01

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

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

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

Keywords: Ethnic identity, Migration, Mobility

Presentation Preference - Oral

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

In this paper, we argue in favour of a more open notion of mobility, which needs to be considered as a dynamic process and not only as a vector of material change. Migrations may be large-scale phenomena, taking place independently from local or individual agency, as well as more subtle types of diachronic spread, taking place on a small-scale and depending on dynamic 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)
**Co-author(s)** - SAMPETTI, D., Istituto Italiano Paleontologia Umana, Rome, Italy

**Keywords**:
- material imagination
- mobility dynamics
- traditions

**Presentation Preference** - Oral

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

By interdisciplinary analysis on engraved and painted signs on stones of 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, picting, pinching, painting, molding) helps to understand and to trace styles/traditions, methods and ability, the analysis of mineral and 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 sites from Italian territory and from wider Mediterranean and Alpine contexts, to discuss the insight of human creativity and perception and to evaluate human mobility dynamics in relationship with their potential original ethnicity, the raising of new creativity and the ways of making material imagination.

**TH1-04 Abstract 03**

**Migration or Acculturation? The Mesolithic-Neolithic conundrum**

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

**Keywords**:
- Mesolithic
- Neolithic
- Transition

**Presentation Preference** - Oral

Archaeology is often governed by national boundaries or focused 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 endorising one or several “models” to explain the process.

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

**Why so early and why so late?**

- What happened in between in time and space?
- Who were the players?

If archaeology is the means by which to write prehistoric history, we need to visualise the players in their environment, and try to understand their lifeways, motivations and evolution over many generations to pretend to grasp the extent of the Transition from a life lived in symbiosis with nature to one in which nature is controlled, and which, unbeknown to the players, heralded the competition, helping to counter-balance rigid models of lineage status argued on the basis of isotopic evidence.

A lasting impact on some aspects of LBK worldview. They could also form an alternative means of identity creation and social competition, helping to counter-balance rigid models of lineage status argued on the basis of isotopic evidence.

- Oral

**TH1-04 Abstract 06**

**Deciphering cords: a case study in Bulgarian Early Bronze Age**

**Author** - Semmoto, Massao, Ancient Orient Museum, Isfahana, Japan (Presenting author)

**Keywords**:
- Bulgaria
- Early Bronze Age
- Pottery with cord decoration

**Presentation Preference** - Oral

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

Using the combined knowledge gained from archaeology, isotope analyses and ancient genomes we can address questions of migration and mobility in the late Scandinavian Neolithic.
TH1-04 Abstract 10
Greek Migration along the Ionian Coastline (Southern Italy)

Author: PhD Student Crudo, Maurizio, University of Groningen, Roma, Italy (Presenting author)
Co-author(s): Jacobsen, Jan Kindberg, Ny Carlsberg Glyptotek, Copenhagen, Denmark
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Co-author(s): Crudo, Maurizio, University of South Florida, Tampa, United States of America
Keywords: archaeometry, Greek Colonialization, Pottery
Presentation Preference: Oral

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

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

From the end of the 9th century BC onwards, an Euboean presence is detectable in the western Mediterranean, including Northern Africa, Spain and Italy. The Euboeans settled in the Sibaritide, where Greek-indigenous coexistence emerged in the settlement of 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 Achaeian migration, which most famously led to the foundation of the so-called colony of Sybaris.

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

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

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

This study attempts to identify and analyse processes of cultural transformation in south-eastern Sicily when indigenous populations came into contact with ancient Greek settlers during the eighth and the seventh centuries B.C. Historically, it is a crucial moment for Sicily because it initiated an irreversible process of modification of the original indigenous culture. This event brought profound and significant changes to the material culture of the indigenous communities. Earlier studies explain this revolution in material culture as the result of “Hellenisation”, a seemingly one-way process of adopting the “superior” Greek culture, with little influence traveling in the opposite direction. However, recent socio-anthropological studies claim that such cultural interactions are more complex and can incorporate not only a two-way process but also enable the maintenance of distinct cultural and ethnic identities through the careful selection of cultural features. In order to develop more comprehensive models of cultural contacts and the relationships established between indigenous Sicilians and Greek during the first 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 understanding the complex relationship between indigenous Sicilians and Greek migrants. During the end of the eighth century BC new pottery types, evolving and imitating Greek models, appear in indigenous Sicilian gravies 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 conjunction with archaeo-anthropological and anthropological methods, is a successful method to understand the social, ideological and material interactions of the indigenous Sicilian community of Monte Finocchito with the Greeks.

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

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

Beginning with 2012 a region in the Eastern Carpathians of Northern Romania was systematically surveyed for the first time. The focus of this research is, to this date, the study of the mountain passage ways between two historical regions, that of Maramures and Bucovina. The field surveys carried since 2012 and their results so far indicate at least two main routes, one through a glacial valley that reaches 1500 m.s.l. in the Rodnei Mountains and the other one further north in the Maramureş Mountains. The archaeological finds, consisting of lithics and pottery, are confirming a human presence at these altitudes, from Paleolithic until the Roman period. Through the use of specific archaeological analyses the activity within the area will be presented as a search for raw materials by the prehistoric populations followed in the post-Roman period by the establishment of a trade route gateway between the two sides of the mountains.

TH1-04 Abstract 13
Origin and Development of Balbals Stelae

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

Kurgan stelae, also known as balbals (Russian: камень бабал; Polish baby kamienie; Kyrgyz: балбант) are anthropomorphic stone statues or slabs set atop, within or around kurgans (barrows/tumulus), in kurgan cemeteries or special sacred zones on the territory of the Eurasian Great Steppe and surrounding areas. This custom is in practice from the Enteolithic to almost Modern Times. The term ‘balbal’ came from a Turkic word meaning “ancestor” or “grandfather.” The earlier examples of these stelae are associated with Sredny Stog and Yamna (Pit Grave) cultures and dated to the 4th millennium BC. Although this custom existed incessantly on many various territories from the Enteolithic to Modern Times, however it was extremely popular in scythian culture, Turkic Kaganate and among Cumans (Khalkas). Usually these objects were memorials honouring the dead, but there were some exceptions. For most periods kurgan stelae represent mostly males, however in the Kuman Period female stelae were very popular. Balbals commonly depict warriors holding weapons and drinking horns or bowls. There might also depict so many other items like belts and tools. Probably from balbals may derives other kinds of stelae, for example: deer stones, Bakhtiar lion tombstones and stone rams and horses from Azerbaijan.

The purpose of my poster is the introduction to evolution and development of kurgan stelae and show differentiation this kind of architectures and presentation the investigative methodology of balbals.

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

Author: post doctorate Chiquet, Patricia, Museum d’histoire naturelle, Geneva, Switzerland (Presenting author)
Keywords: Alp, neolithic, pastoralism
Presentation Preference: Poster

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

Taking into account the long term occupation of some settlements, animal production and herd management are explored to define the subsistence strategies of these neolithic communities and the possible movement of the herds to seasonal pastures.

Through a comparison of these two regions, we try to gain a better understanding of the territorial and economic organisation of these alpine communities.
The Avellino event: a volcanic eruption and mass migration in South Lazio during the Bronze Age?

**Author**: Dr. Doorenbosch, Marieke, University of Leiden, Leiden, Netherlands (Presenting author)

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**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.

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

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

**Presentation Preference**: Poster

One of the most controversial problems of the boundary of the Late Bronze Age archaeology is interaction of the population during the Sintashta period. Sintashta culture was allocated on the monuments of South Ural (Chelyabinsk region), and the most well-studied in this region. The settlements (Arkaim, Sintashta, Ustye I, Kamenny Ambar, Kuyusk, etc.) and burial grounds (Sintashta, Krivoe Ozero, Kamenny Ambar, Stepnoe VII, Bolshokragaresky 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, Ishkinovo 2, Gerasimovo 2, 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 complex are typical mainly for Sintashta culture, however there are signs of other cultural traditions. This is connected with the location of this complex in the intermediate area between Sintashta and Potapovka monuments.

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

Thus, the Southern Urals steppe at the beginning of the 2nd millennium BC was the region of active culture genesis. Orenburg region is located far from the main Sintashta area, at the territory between the Sintashta and Potapovka areas. New researches of the Sintashta monuments with application of radio-carbon dating and methods of a soil science will provide new important data about the population of South Ural steppe at the beginning of 2nd millennium BC.
TH1-05 Abstract 01
Is it gold that matters? The role of sumptuous burials of women in Bronze and Iron Age Europe

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

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

In these traditional analyses of ostentatious burials of female graves however, little or no role plays the actual grave content of the sumptuous graves and how they might have related to their time-space specific social context. We argue that sumptuous burials of women are rarely thematized systematically.

In this paper I will examine ostentatious graves of women in a wide chronological and geographical scope in order to ask under which conditions sumptuous female burials occur, how they relate to contemporary male burials in qualitative as well as quantitative aspects and why in some cases they seem to be absent in the archaeological record. I will focus on case studies ranging from the Early Bronze Age in western and central Europe, the late Bronze Age in central Europe to the early Iron Age between the so-called western Hallstatt Culture and the Scythians princely graves of the east European steppes.

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

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

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

Such an approach needs to take into account the difficulties to estimates values. In pretitiate societies, empt approach is not possible; the elit approach is the only one. Thus we need to develop methodological tools in order to classify graves against each other.

The purpose of my presentation will be to present a methodology developed during my PhD of ranking funerary data, so as to detect social structures. This work is based from 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 more contextual, qualitative approaches make it possible especially to develop a gender approach and a characterization of social structures and their evolution on a long term perspective.

TH1-05 Abstract 03
(inter)regional identities - performance in EIA sumptuous burials of the Low Countries

Author - Dr. Schumann, Robert, University of Hamburg, Hamburg, Germany (Presenting author)
Co-author(s) - Van der Vaart-Verschoof, Sasja, Leiden University, Leiden, Netherlands
Keywords: Early Iron Age, Low Countries, Sumptuous Graves

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 burials contain many of the same objects, all imports from the Hallstatt Culture in Central Europe. New finds and research, including the comprehensive study of all the Dutch and Belgian burials offer new insights into these graves. The elite burials of the Low Countries not only contain far more Central European ‘princely’ paraglypha than thought, they also appear to contain funerary imports: challenging the established interpretation of these burials being feeble derivatives. These imported items, however, appear to have been re-contextualized in a regionally specific manner through a destructive burial practice that involved the transformation of both the dead and their grave goods through fire, manipulation and fragmentation.

While the burial rituals seem to differ between the Hallstatt Culture and the Low Countries, detailed examination of rituals in both areas shows similarities as well. The objects interred in these sumptuous graves of the early Hallstatt Period in the Low Countries and those of the early Hallstatt Culture in southern Germany, western Austria and Bohemia also testify large-scale contacts as well as a potentially increasing social differentiation (or at least its representation in burials). The relationships that must have existed between these and other areas in the early Hallstatt period can be addressed and considered on a large scale.

In this paper we present the possibilities of analyses by looking at the ostentatious burials from the Low Countries both from the regional and the international perspective, an approach that leads to a much better understanding of the performance of those exceptional burials.

TH1-05 Abstract 04
New Approaches to the Principely Burials of the Hallstatt Culture of the Heuneburg (Southwest Germany)

Author - Dipl.-Rest. Elinge-Riet, Nicole, Landesamt für Denkmalspflege, Esslingen, Germany (Presenting author)
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Keywords: Burials of change, modern excavation, Sumptuous Burial

The Heuneburg on the upper Danube is among the best-researched (intensively investigated) settlement centres of the Hallstatt culture in Central Europe. While the research regarding the settlement structures of the Heuneburg and the surrounding area has been a key element in German Early Iron Age research since the 1990s, controversy concerning the apparent presence of princely burials has been relatively neglected in the last 70s. The targeted excavation of a richly endowed child’s burial site, and of a site in which princesses were interred, south of the Heuneburg, has given powerful testimony to the fragmentary state of our knowledge of the sociopolitical processes and structures of the 6th century BC. The presentation offers an exemplary look into the manner in which a
single ceremonial tomb discovery, and the related research, has employed modern methods of excavation and analysis to decisively
update our previous sociocultural interpretation models and chronological theories.

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

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Keywords: Iron Age, mortuary analysis, multiple burials
Presentation Preference - Oral

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

THI-05 Abstract 06
Discernable Traces in Textil Archaeology

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

The uniqueness of the late Hallstatt-period textile assemblage from the princely grave at Eberdingen-Hochdorf (SW-Germany) is not limited to its highlighting textile manufacturing as an economic focus in this region, providing differentiated insights into burial customs, the sequences of mortuary ceremonies or insights into concepts about the afterlife. It is relevant that this 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)
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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 (Bol’shoy Kamenetz) was published by L.A. Matsulevich in 1934. The study how complexes have been discovered reveals that they are the burials. In Bol’shoy Kamenetz burial was in a stone crypt, built at the base of a high bank of a creek, which flows into the river Sudzha. Mapping of all finds indicates their exclusive relationship with the sources of large creeks flowing in deep canyons and at the same time associated with the watersheds of river systems. Discussed sumptuous complexes are very different from the burials of the Chernyakhov culture, even at its highest level examples. There are simple common explanations for this difference: 1. “Chronological”, when the sumptuous burials attributed to later Hun period (the period D3, ie, 450-470 / 480s AD), when the Chernyakhov culture no longer existed. 2. “Ethnic” Both of these explanations are not satisfactory: 1. Late burials at Chernyakhov cemeteries in the area between the Dniester and Don rivers dated to stages D1 and D2 of European chronology. The presence of glass 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 Bosporus whence come the closest analogues of prestigious weapons, harness and silver vessels. Discussed finds belong to the common European horizon of burials of the nobility, the leaders of the barbarian kingdoms, which arose at the beginning of the Great Migration period on the periphery of the ancient world. Often death caught up with kings and military leaders of the Great Migrations in the territory and the environment in which they had no historical roots, nor stable relations. Their tombs and grave structures are unlikely to be perceived as a place of worship and a landmark of the traditional movement. Perhaps this explains the absence of grave structures and the great efforts spent on to hide the ordinary burials of high-level persons, monarchs beyond the ordinary cemetery in protected, perhaps a sacred place. The exceptional volume and value of inventory corresponds to the rank of the deceased in his lifetime. The concept of “center of power” is applicable to the single “princes” and “military chiefs” burials.

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)
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Presentation Preference - Oral

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

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

By focusing upon landscape features, burial mounds and graves as demographic indicators, new approaches can be developed for modeling changing social landscapes across a branch of the Silk route. This circumscribed region can serve as the first step for building a regional settlement system that incorporates demography, social hierarchy, political organization of territories, and relating natural and social 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 - Dr. Johnson, James, University of Chicago, Chicago, United States of America (Presenting author)
Keywords: Aesthetics, Burials, Iron Age
Presentation Preference - Oral

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

We draw 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 powerful relations. I contend that funerary performances, including audience participation, were miniaturized sensory, 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 legitimate, and reinforce, the cosmological and social ordering of Pontic Iron Age communities through carefully designed and produced aesthetic displays.

TH1-05 Abstract 10

The Kurgans of Scythian Nobility in the Eurasian Steppes

Author - Dr. Habib. Ochi-Goryaeva, Maria, Institute of archaeology Tashkent academy of sciences, Kazan, Russian Federation (Presenting author)

Keywords: Eurasia, kurgan, Scythian epoch, nobility

Presentation Preference - Oral

Several thousands of burial sites of the Eurasian steppes dating to the Scythian epoch are associated with a number of archeological cultures of the Scythian type. Their funeral rites have 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 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 their 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 within the mounds have been analyzed to produce a number of their arrangement patterns with respect to the spatial representation of kinship and family hierarchy of the Scythian society and to their system of geographical orientation in terms of cardinal points. Importantly, the regional differences in the spatial planigraphy shown on the kurgan planigraphical profiles seem to be associated with the manner and lateral spatial arrangement of the entire burial constructions in terms of the cardinal points. Moreover, if these are taken into consideration, it is no longer possible to maintain the idea of the Scythian-Siberian unity of the archeological cultures of the region, where in fact one deals with two distinct cultural communities. Also, as the present work has shown, there is a logistical association between the spatial arrangement of the kurgans and the location of the cardinal points and the ideas the ancient populations had about the location of the world of the dead, as well as their geographical worldview, which belongs to the basic conceptualizations of every ethnic group and finds reflection in archeological cultures as well.

TH1-05 Abstract 11

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

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

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Keywords: borderlands, Eurasia, Silk Road

Presentation Preference - Oral

Much has been made of the social and economic exchanges across the Silk Road, from Afghanistan in the west and China in the East, in the later first and early second millennium CE. Literary sources at both ends of the route document impressions of the ‘other’ as different from themselves – the residents of dominant state level societies. Material remains certify that the exchange was significant economically, but also culturally. Surely the most visible evidence of the value of that interaction was captured in the form of the spectacular burials of those periods, where material evidence extant to the local region surrounding and shrunked the elite. This paper will consider what message the assorted choice of non-local or non-locally inspired grave deposits, afforded in the first millennium CE by looking closely at two assemblages, one in Afghanistan and one in the other in China. Across Eurasia at this time foreign imagery, technologies and mortuary practices and uses of artifacts derived from all sectors of that far-flung exchange network and we shall argue that this denotes and documents a cosmopolitan attitude about displaying one’s identity at death. No more telling of the eclectic and intercultural character of those expressions were the grave goods deposited in the six excavated tombs at Tillya Tepe, Afghanistan, found in a location that could be characterized as bordering on several powerful groups. Materials in those tombs connect imagery from the Near East, Hellenistic Central Asia, southwest Asia, present-day India and China.

Granulation, inlay and lostwax/lost wax techniques were imported into the region from Western Asia and China. At the far eastern edge of this indirect traffic of goods and technologies, in the late Han Dynasty Period of the Western Regions, anoth-er set of burial, known from the excavations at Guoci, and in particular in the tomb of Cheshi, at Baise, Xingyang, display a similar mixture of goods and practices. There artifacts included gold appliques and ornaments with granulation and loops that made clear western Asian connections as well as a preference for more eastern 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.

TH1-05 Abstract 12

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

Author - Schreiber, Finn, University Berlin, Berlin, Germany (Presenting author)

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

Keywords: Bronze Age, Eurasia, Multivariate Statistics

Presentation Preference - Poster

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

My poster is about the results of multivariate statistical methods used in archaeology to establish a relative chronology for cemeteries. It is demonstrated here on some examples from my current investigations. Information will be provided for scientists without statistical experience. There is also brief information on the geographical and cultural background of these sites. The poster shows that the multivariate statistics can lead to a more detailed understanding of the development and dynamics in Eurasian Bronze Age funeral archaeology and to a better understanding of cultural and social differences.

TH1-05 Abstract 13

Origin of the Polychrome Style Jewellery

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

Keywords: Huns, Migration Period, polychrome

Presentation Preference - Poster

One of the most characteristic element of the hunnic culture of the Migration Period is the polychrome style jewellery. In this style the surfaces of gold or silver objects were decorated with precious or semi-precious stones (like almandine, red garnets, carnelians) or pieces of glass, which usually were red. These ornamental elements were set within strips of gold, often surrounded with granulation or filigree. There was another version of this style called ciaisonnik which the glass or gemstones were set in compartments of soldered strips of metal foil, separated by wire, over a strip of metal foil. The polychrome style is used in ornamenting dress accessories, horse equipment, diadems, weapons, jewellery and other things. Many researchers have divergent opinions about provenance of this jewellery style. According to popular opinion, the polychrome style was not typical only for European Barbaricum like Carpathian Basin, West Europe or Black Sea region, but it existed also in Central Asia, north-west modern China and even Korean Peninsula. Moreover the polychrome style not occurred first time during the Migration Period, but much earlier. There are also some polychrome decorated artefacts from East Europe (Sarmatian culture) and Central Asia (Bala Hustain culture and Karkar culture) dated to period between 5th century B.C. and 1st century B.C. These artefacts are very similar to polychrome style ornamented objects from the Migration Period. Some scholars (Arrhenius 1971, 1985) claim that “barbaric” peoples had not such technology and knowledge to shape and stick gemstones and glass pieces to a gold foil. Other scholars (Schmieder 2002: 237-55) affirm that polychrome style evolved from the hellenistic jewellery traditions. The problem is that there are some polychrome decorated artefacts from Iran and central Asia dated to Achaemenid Period! My poster consist of my investigations of the origin and development of the polychrome style jewellery.
Breaking and making the ancestors. 
Making sense of the inconspicuous 99% of urnfield graves

Author - Louwe, Anja, 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 - Lundkvist, Martin, Bohuslän, Sweden (Presenting author)
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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/chaufalric 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 Andreasson, Anna, Stockholm University, Helsingborg, Sweden (Presenting author)
Keywords: garden archaeology, horticulture, medieval pleasure gardens
Presentation Preference - Oral

Gardens and horticulture played important roles in everyday life in Medieval castles. Plant products (food, medicine, spices, textiles and dyes) where 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 ascertained.

As the interior of the large majority of the rooms, especially in the main castle (Convent House), were fully excavated already in 1878-79, archaeological analysis has to rely on rather limited data, and the material obtained outside the buildings themselves. Based on the evidence collected during fieldwork in 1939, but mainly in 2000-2004, we concentrate on the information on diet, handicraft, and luxury in the castle, and the temporal changes we have established during the period of usage (ca. 1224–1610).

Especially data from the excavations just east and southeast of the main castle allows discussing the activities carried out in the castle, and the way these can be traced from the archaeological record. We have employed find analysis, zooarchaeological analyses, as well as 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 crossbow 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 interpret on their formation, to figure out how much these are “typical” or “special” deposits. A few examples will be given in the presentation.
THI-06 Abstract 03

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

Author: Dr. Pukienė, Rūta, National Museum the Palace of Grand Dukes of Lithuania, Vilnius, Lithuania (Presenting author)
Co-author(s): Kaminskaitė, Irute, National Museum the Palace of Grand Dukes of Lithuania, Vilnius, Lithuania
Keywords: Archaeobiology; History of hygiene; Late medieval period
Presentation Preference: Oral

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

Over 3000 wooden or such composite artifacts were found while investigating the territory of Vilnius Lower Castle. The findings which are conditionally attributed to hygiene segment compose small part of this collection and encompass combs and mirror frames. During the investigation 23 combs and 17 mirror frames were found, as well as 7 findings related with their production: blanks and wastes. These artifacts represent the period of the 14th - 16th centuries. The majority of combs are made of boxwood (Buxus sempervirens L.) but two items made of Rosaceae (subtribe Malhiae) wood were also determined by the wood anatomy analysis. The combs are rather uniform, double-sided, rectangular with lenticel profile and quite simply decorated. The mirror frames are round-shaped with a round socket for a reflecting plate. The majority of 9 frames are turned from softwood planks. One frame is made of pine (Pinus sylvestris L.), two – of spruce (Picea abies (L.) H. Karst) and three – from the wood of fir (Abies alba Mill.), which is not native in Lithuania. One mirror frame had two sockets on opposite surfaces and was made of a cross-section of lime (Tilia sp.) round-wood. This frame was decorated with carbon-black triangles. No traces of reflecting plates were found in any case but adhesive paste made of chalk and animal glue was detected in three frames.

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

THI-06 Abstract 04

Tableware in the Vilnius Lower Castle: function, significance and evolution

Author: PhD student, Archeoziutė-Ramanauskienė, Skaišta, Vilnius University, Vilnius, Lithuania (Presenting author)
Keywords: dining, tableware, Vilnius Lower Castle
Presentation Preference: Oral

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

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

THI-06 Abstract 05

Iron nails of cultural layers from Klaipeda castle: a functional aspect

Author: Master Stankūčiūtė, Eglė, Palanga Resort Museum, Palanga, Lithuania (Presenting author)
Keywords: Iron nails, Klaipeda castle, Medieval
Presentation Preference: Oral

This study is dedicated to introduce the auditor with currently in Lithuanian archaeology not widely analysed archaeological findings group – iron nails. In 2014, during archaeological excavations of Klaipeda castle, more than 13 000 units of nails and their fragments were collected, which, according to cultural layers, corresponds with Medieval and Modern ages of Klaipeda castle, and also city historical development. This study focuses on during archaeological excavations in year 2014 in Klaipeda castle obtained iron nails types function, their adaptability in the old Klaipeda city constructions and the mode of life. Latter research resulted more data about Medieval and Modern ages of Klaipeda castle.

THI-06 Abstract 06

Glimpses into the armed life in the medieval castle of Raseborg

Author: M-A. Tarvainen, Etna, University of Helsinki, Helsinki, Finland (Presenting author)
Keywords: Main theme: 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 (FI, 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 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 tell 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 literary 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.

THI-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 paper is a case study on the significance and value of a castle for a fief holder’s life – using as an example the era of the Tott family in Finland. Moreover, the territory distinguishes itself with continuous chronological records, dating back to the first mention of Lithuania as a state. The Palace of the Grand Dukes of Lithuania played a central role in this area as it was the residence of the grand dukes of Lithuania and the kings of Poland. Other buildings in order of importance were the Bishop’s Palace and the Cathedral, as well as the Arsenal and barrack, houses of nobles and ordinary townspeople. Therefore the entire territory of Vilnius Lower Castle reflects the lifestyle of the grand dukes, nobles, nobility, clergy and citizens, as well as their connections with Western cultures.

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

THI-06 Abstract 08

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

Author: Dr. Runkvist, Martin, Umea University, Saltjarvbaden, Sweden (Presenting author)
Keywords: Castles, Medieval
Presentation Preference: Oral

This paper is a case study on the significance and value of a castle for a fief holder’s life – using as an example the era of the Tott family in the Finnish castles, especially the fiefs of Lady Ingelborg Åkesdotter Tott (fief holder of Häme Castle 1497/1504–1507) and of Åke Jöransson Tott (fief holder of Häme Castle 1508–1520). A fief holder’s duties were administrative and military on the level of the realm (as a member of the council of Sweden), as on the level of the län (administrative district) as in the castle. To be able to take care of their duties, the medieval fief holders also lived in their castles.

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

Keywords: Archaeology, Medieval, lifestyle, diet

Presentation Preference: Oral

The remaining three sessions will deal with the selective deposition of metalwork in the Bronze Age. The Bronze Age is a key period in human history, as it marks the transition from a prehistoric to a classical civilization. During this time, societies became more complex, and the use of metalwork became more widespread. The selective deposition of metalwork can provide valuable insights into the social, economic, and cultural practices of the time.

**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.

**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, amber, flint and wood alongside objects of bronze and gold.

Among these finds we find a well-preserved wooden stool with Bronze Age carvings from Høstad outside Trondheim, found together with wooden platters and cups probably used in a ritual meal. Although there are differences in how the various objects were treated and deposited, they all seem to follow the same distribution in time, with significant peaks in the late Neolithic/Early Bronze Age (c. 2350-c. 1500 BC) and at the end of the Bronze Age (c. 900-500 BC). Thus, they seem to represent related practices.
This page will give an overview of the practice of deposition in the area, and consider how variations in the material can be interpreted by applying a biographical approach in order to increase their interpretative value in studies of prehistoric deposition.

**TH1-07 Abstract 03**

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

Author: MA Saipio, Jariko, University of Helsinki, Helsinki, Finland (Presenting author)

Keywords: Bronze Age, Fennoscandia, Ritual archaeology; Structured deposition

Presentation Preference: Oral

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

**TH1-07 Abstract 04**

Early Bronze Age metalwork deposits in Denmark

Author: Viáser, Marike, Leiden University, Faculty of Archaeology, Rotterdam, Netherlands (Presenting author)

Keywords: Denmark, Early Bronze Age, Metalwork deposits

Presentation Preference: Oral

Denmark is known for its rich, well-documented archaeological record dating to the Bronze Age. Metalwork has been found in bogs, on dry land and in burials. However, Denmark is a 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 royal mortuary rituals, exists in the area, going back to early archaeologists from the 19th century and their interpretations. Another research tradition distinguishes different categories of non-royal 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. Certain objects in wet areas, like bogs, and other objects in burials. The emergence of these deposition practices in the Early Bronze Age in Denmark, going back to the Neolithic, is the topic of the present study, with a particular focus on Jutland. Selective metalwork deposition practices in northwest Germany (western Schleswig-Holstein and Niedersachsen) and the north-western part of the Netherlands are part of the present study as well in order to acquire an increased understanding of the Danish patterns and to set these in a wider regional perspective.

**TH1-07 Abstract 05**

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

Author: PhD Sarauw, Torben, Museum of Northern Jutland, Aalborg, Denmark (Presenting author)

Keywords: hoard, Horse harness, late Bronze Age

Presentation Preference: Oral

In the summer of 2014, a late Bronze Age hoard was found and excavated in Northern Jutland, Denmark. The hoard not only contained both male and female items, but also several parts of horse harness and bridle, bearing witness of the use of two-horse teams. Most surprisingly, several meters of leather straps were preserved. Furthermore, cheek pieces and phalerae were in situ on the leather straps allowing a reconstruction of parts of the bridle. Apparently, a similar tradition of deposition took place in a large area corresponding to Southern Scandinavia and the southern Baltic area.
TH1-07 Abstract 09

Fragmentation as a common feature in European Bronze Age hoarding

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

Keywords: Bronze Age, Deposition

Presentation Preference - Oral

Deliberate fragmentation is a well known feature in Bronze Age hoards all over Europe, shifting in space and time. The aim of the paper is to discuss and specify the German term „Brucherzhorte“ (scrap hoards) and to discuss these finds. We will consider especially depositions where broken pieces outnumber all other metal pieces. To illustrate this the central German „scrap hoard“ from 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 id estify the variability of fragmentation, the degree of typologically important bronzes and the relation of regional versus imported artifacts. Similar structured scrap hoards from different European regions will be introduced and compared.

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

TH1-07 Abstract 10

Places of deposition of metalwork assemblages in West Bohemia

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

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

Keywords: Bronze Age, hoards, Landscape

Presentation Preference - Oral

One way to answer questions concerning the selective deposition of metalwork in the Bronze Age is the detailed analysis of the place where metalwork assemblages were deposited. A territorially and chronologically defined sample of such assemblages – hoards – was deliberately selected. We assume that if hoards had differing functions in different periods and/or territories in the past, the data obtained through a single analysis of a de facto heterogeneous set of objects would affect the quality of the final interpretation. Our chosen method, the targeted analysis of a closely-defined set of objects, helps eliminate this risk, and allows the subsequent testing of the newly-obtained data on an ever wider set of objects that seem to show identical features, but have different territorial or chronological ambits. We therefore focused on 31 Urnfield Period hoards recorded to date in the West Bohemia region. For our questions, it is important that it was possible to determine precisely the original location for 27 of the hoards. The field survey focused mainly on evaluating the subjective reception of the given space in order to assess potential links of the hoards to significant natural features. This analysis found a surprisingly narrow group of natural features that could have influenced the choice of a location suitable for hoarding: namely rocks or distinctly rocky terrain, dominant hills in the 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, Ondraž, University of South Bohemia, Ceske Budejovice, Czech Republic

Keywords: copper ingots, Early Bronze Age hoards, South Bohemia

Presentation Preference - Oral

The territory of South Bohemia provided an important link between Danube valley and Central Bohemia in the Early Bronze Age. There are currently more than 80 hoards known from this area, a large part of them were discovered in the last two decades, therefore 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 12

Urnfield Period hoards in South Bohemia

Author - Doc. Chvojka, Ondraž, 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. B202 – Ha B3) were known 15 years ago. In the last years the number increased to 91 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 Bárta, 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 Böss type family, when the only place you could find a sword in a river was in grave or river. This practice continuously gained momentum and reached peak at the beginning of the early urnfield period (BD-HA). Recently, there is almost complete lack of other types of metal deposits in the area of middle Danube during this period. It is most striking when compared to hoard-rich areas in central and north Slovakia, Czech lands as well as eastern Hungary, where swords were among other types of hoards primary deposited in „dry land“. This paper will be based on my personal long-term, not yet published research. Since hallmark studies by K. Torbrieg, 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 - Szavaynényi, Vajk, Hungarian Academy of Sciences, Budapest, Hungary

Co-author(s) - Pirigón, Tanya, Northeastern 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 Hajdújászsán, Tolnaomedi
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 - Hrvoje, Kalafatić, 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 metallurgy intensified new social practices such as depositing metal objects. The Carpathian Basin is a region with a high density of metalworks 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 first research of Late Bronze Age of the southern part of Carpathian Basin was almost exclusively focused on the phenomena of hoards, mostly observing such hoards as a feature separated from the communities that contemporaneously inhabited the area. This approach was the consequence of the fact that almost all available Late Bronze Age metal artifacts were found as parts of hoards, while at the same time context of such hoards and its relations to contemporaneous settlements and cemeteries is unclear. The main reason for this is the fact that a large number of hoards were found in time when archaeology was still developing discipline, so that context of find was not properly documented or even observed. In these circumstances the Late Bronze Age hoards were never studied as a part of the communities present, separated of its social and archaeological context.

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

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

Author - Dr. Kiss, Viktória, Research Centre for the Humanities, Hungarian Academy of Sciences, Budapest, Hungary (Presenting author)
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Co-author(s) - Szabó, Gács, Wesinsky Mór Museum, Székesfehérvár, Hungary
Keywords: Bronze Age, hoards, selective deposition
Presentation Preference - Oral

The standardised structure of the context of the so called Tolnánmedi type hoards (18 hoards from western Hungary, basically sets of ornaments and a few weapons and tools) is a clear indicator of the practice of selective deposition, and supports the assumption that this group of finds was buried for the same reason in the entire territory connected to Transdanubian Encrusted Pottery style during the Middle Bronze Age (2000-1500 BC). When comparing the numbers of the artefacts from these hoards with the data coming from the graves of the same region during the same period the numbers show the multiple of one person’s attire. This fact was important during interpretation of the Tolnánmedi type hoards. According to former assumptions these hoards were connected to military actions (wars) or to rites of passage. However, recent results of burial practice analysis of the period suggest another model. We would like to present the reinterpretation of the mentioned hoards concerning the results of statistical analysis of the jewellry types from burials and hoards, examinations of the microstructure of metal finds, and the study of a recently found clay human figurine of the same period with the depositions of the ornaments concerned.

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

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

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

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

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

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

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

Characteristic feature of the European continent population in Bronze Age is metal works deposition in form of ‘hoards’. Upper Tisa Region (UTR) is one of the richest in Europe on the finds of “hoards”: nearly 500. From the topographical point of view it’s very various. UTR, especially the eastern part, is rich on different mineral resources (such as salt, gold, copper). During Bronze Age at local population, by an insignificant exception, the cremation as a mortuary rite was dominant.

The first metal works hoards in UTR appeared at the beginning of Copper Age. At the Late Copper Age (Balen culture, Cotofenii culture) and in the Early Bronze Age (Mako culture, Nisač culture) the tradition of deposition was not continued. The Middle Bronze Age (BA2) is a new stage of hoarding in UTR. Culturally they belong to Ottoman-Füsássony culture and early phase of Suciu de Sus culture. Geographically they belong to eastern part of UTR. The earliest hoards consists mainly of prestige objects (ornamented weapons and gold wares).

Author examines two versions of appearance of this phenomenon in UTR: 1) tradition of deposition arose up as a result of internal development of local Bronze Age society; 2) tradition of deposition arose up as a result of external contacts of local tribal elites. Development of this tradition continuing with maximal distribution in periods from BD-HaA1 (Suciu de Sus and Gava cultures) and till the end of Bronze Age.

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

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

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

The extent to which transformations in metal deposition reflected the fluctuating and volatile nature of metal demand and supply throughout Atlantic Europe during the Bronze Age will also be considered. The intensification of fragmentation of networks of interaction had ramifications on metal assemblages and flows, and thus also upon the underlying metalwork depositional traditions and the ways in which metal was thought about, used, recycled and deconstructed. A more integrated approach will be adopted to help fine-tune several of the pertinent questions this session wishes to address.

TH1-07 Abstract 20

Structures and function of Bronze Age deposition in Ireland

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

The depositional record in Bronze Age Ireland (c. 2500 to c. 800 BC) is exceptionally rich, with both gold and bronze artefacts being deposited in hoards or singly in the natural landscape. Deposition as burial goods is rare and restricted to the earlier part of the period. This paper will demonstrate how type-specific depositional patterns structure the record and reflect deliberate selection processes regarding which materials and object types were suitable for deposition in specific types of context. This paper will outline the main characteristics of this practice, highlighting trends with great longevity throughout the Bronze Age.

Based on a selection of case studies an interpretation will be suggested that transgresses conceptual boundaries between ‘ritual’ and ‘functional’ and may open up new avenues of thinking of the at first sight rather disparate parts of the depositional record – single finds, hoards, burials, gold, bronze - as part of one cohesive, but diverse, cultural practice.

TH1-07 Abstract 21

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

Author: Autenrieth, Sabrina, Faculty of Archaeology, Leiden, Netherlands (Presenting author)
Keywords: Bronze Age, Deposition, Middle Rhine Valley
Presentation Preference - Oral

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

TH1-07 Abstract 22

Selective Deposition of Metalworking Remains in Bronze Age Britain

Author: Dr. Adams, Sophia, University of Bristol, Bristol, United Kingdom (Presenting author)
Co-author(s): Dr. Waley, Leo, University of Bristol, Bristol, United Kingdom
Keywords: Bronze Age, Deposition, Metalworking
Presentation Preference - Oral

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

TH1-07 Abstract 23

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

Author: Dr. Adams, Sophia, University of Bristol, Bristol, United Kingdom (Presenting author)
Co-author(s): Davis, Richard, University of Nottingham, Nottingham, United Kingdom
Keywords: Bronze Age, metalwork, spatial analysis
Presentation Preference - Oral

Selective deposition of Bronze Age metalwork in the British Isles is a well documented phenomenon which has been studied intensively by a number of researchers. Initial work focused primarily on establishing and refining typochronological frameworks based on patterns of association within hoards. Within the presentation of this session, the focus is on the understanding of depositional practices 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.
Selective deposition due to ritual intentions has in the last years been identified as a key-concept governing the formation of Bronze Age metalwork assemblages. Especially in regions like the Carpathian Basin, where the transmission of metalwork depends heavily on deliberate decisions on the inclusion of certain object classes in hoards and the exclusion of others, severe repercussions for the interpretability of the archaeological record can be expected. Although widely accepted on a theoretical level, until now the full consequences of selective deposition have not been explored for the southeastern European Bronze Age archaeological record. The present contribution aims at highlighting the far-reaching implications of ternary processes of 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.

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**TH1-07 Abstract 29**

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

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

Kosova’s favorable geographic position in the central Balkans has enabled its connection with neighboring and farther territories, thus making the influence of various cultures possible from the earliest periods. The development of early prehistoric cultures in Kosovo has been sufficiently explored through systematic work. Nonetheless, there is insufficient knowledge on the development of the Bronze Age in Kosovo. With the finding and excavation of the necropolises in Gilareve, important new steps have been made to complete this gap. Excavations in Gliareve have provided the most precise data for solving important problems of the Bronze Age in Kosovo, as well as for the development of period as a whole. Two necropolises have been identified marked as Gliareve I and II. Both can be dated to the XV and XIV centuries BCE. So far, 48 grave constructions have been found, consisting of two types of burial practices: inhumation and cremation. The transmission of settlement finds is governed by a different set of rules and can serve as a corrective for a more balanced view on the development of Bronze Age metalwork. Isolated instances of early settlement contexts for finished objects, but even more so evidence for casting equipment discarded after use make a much earlier start of production of socketed axes in southeastern Europe probable.

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**TH1-07 Abstract 30**

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

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

Presentation Preference - Poster

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

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**TH1-07 Abstract 25**

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

**Author:** Sampaio, H., Laboratório de Paisagens, Patrimônio e Território (Labatp), Guimarães, Portugal (Presenting author)
**Co-author(s):** Bettencourt, A., Laboratório de Paisagens, Patrimônio e Território (Labatp), Guimarães, Portugal

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 last societies manifestations during the mentioned period. The present work aims to explore the archaeological remains of those practices in a narrowed part of the Iberian, specifically, in the Atlantic fringe of the North-western Portugal (between the basins of rivers Ave and Minho) during the Late Bronze Age. For that, it will be taken into account some of the regional available data, including in progress research, in order to verify some contingencies of such a complex past 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.

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**TH1-07 Abstract 26**

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

**Author:** PD Dr. Reinhold, Sabine, German Archaeological Institute, Berlin, Germany (Presenting author)
**Keywords:** 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 ancientNear East. Yet, context and places of depositions are entirely different. While in the European tradition, remote places near water bodies are preferred, metal objects in the Near East were predominantly deposited within ritual spaces, buildings or real sanctuaries. The Caucasian mountain range is the border between both traditions. This presentation will focus on the different ritual environments of hoarding in Caucasian Bronze Age, on the different locations of ritual places - off-site hoards or sanctuaries, and on the different historical trajectories that led Caucasian people to this specific ritual practice.

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**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 well attested archaeologically, comparative metalwork was also deposited in non-burial contexts such as sacrificial pits, building foundations, and so-called hoards. The implications of these depositional phenomena have not been holistically explored. In this paper, I will discuss metalwork depositions during the Shang (c.1600-c.1050 BC, Middle Bronze Age) in the Central Plain. Questions to be investigated include: what are the variety of depositional contexts for ‘giving up’ metalwork? What compositions of objects were deposited? Can any chronological preferences in depositional practices exist? How do mortuary contexts compare with these non-burial practices? How do the Shang’s practices differ from the Warring States period (475-221 BC)?

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**TH1-07 Abstract 28**

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

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

Presentation Preference - Poster

Selective deposition due to ritual intentions has in the last years been identified as a key-concept governing the formation of Bronze Age metalwork assemblages. Especially in regions like the Carpathian Basin, where the transmission of metalwork depends heavily on deliberate decisions on the inclusion of certain object classes in hoards and the exclusion of others, severe repercussions for the interpretability of the archaeological record can be expected. Although widely accepted on a theoretical level, until now the full consequences of selective deposition have not been explored for the southeastern European Bronze Age archaeological record. The present contribution aims at highlighting the far-reaching implications of ternary processes of 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, Danišj, Groningen Institute of Archeology, Lelystad, Netherlands (Presenting author)
Co-author(s) - Mele, Marko, Slovenska Bistrica, Slovenia (Presenting author)
Co-author(s) - Romankiewicz, Tanja, University of Edinburgh, School of History, Classic and Archaeology, Edinburgh, United Kingdom
Co-author(s) - Winger, Katja, Freie Universität Berlin, Institut für Prähistorische Archäologie, Berlin, Germany

Keywords: buildings, reconstruction, timber

Presentation Preference - Oral

Archaeological settlement research in the Netherlands can traditionally be characterised by its coverage of large excavation areas, often yielding substantial numbers of house-plans. This picture is particularly applicable to the (Peat)soil 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 currently can safely be established on the basis of building remains. Viewing these typological and theoretical approaches as opposites in archaeological settlement research, it becomes clear that they are divided by something of a methodological gap. The current situation in Dutch settlement archaeology seemingly hampers the development of a single, both highly informative and well-founded approach for researching past architecture. 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?

UNDER THE RAISED ROOF: POPULATING SPACE IN AN ANATOLIAN EARLY BRONZE AGE VILLAGE

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

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

Keywords: Anatolia, Early Bronze Age, Household archaeology

Presentation Preference - Oral

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

UNDER THE RAISED ROOF: FROM THE EDGE OF THE SETTLEMENT TO THE CENTRE OF ATTENTION - NEW BUILDING REMAINS FROM KLEINKLEIN (A)

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

Author - Mele, Marko, Slovenska Bistrica, Slovenia (Presenting author)

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

Presentation Preference - Oral

Kleinklein near Großklein in southern Styria (Austria) is known to the scientific community for more than 100 years. It is famous for its bronze mask and hands, bronze cuirasses and ornamented bronze vessels from the princely tumuli in Kleinklein. Since the publication of the tumulus cemetery by Claus Dobiat in the 1980s and the latest publication of the princely tumulus Kollkogel by Markus Egg and Diether Kramer in 2013, the approximately 700 tumuli, which can still be found in the woods around the highest peak called the Burgstallkogel, stand in the centre of attention. The settlement on the plateau of the hill called Burgstallkogel was first researched by Walter Schmid in the beginning of the 20th century and later by Claus Dobiat, who excavated search-trenches on the top and on the northern terraces of Burgstallkogel in 1982 and 1984. They could very well date the settlement, but didn’t uncover any complete building remains or give insights into settlements organization. Since 2010 a team of the Universalmuseum Joanneum is concentrating its research on the settlement area and the region around Burgstallkogel. In 2015, through a mere coincidence, an almost perfectly preserved building was discovered on the southern edge of the settlement. The building, which could be almost completely excavated, burned down at the end of the 7th or beginning of the 6th century BC. Besides the burnt timber walls, preserved in few meters length and with still visible architectural elements, the almost complete stamped clay floor under the ruin of burnt clay and wood could be investigated. The discovered building, which was positioned on a perfectly prepared terrace on the southern slope of the hill, gave us first opportunity to understand the architecture of the site. Since the building burned down, collapsed and no further buildings were erected on its remains, its remains are very well preserved and we have got the opportunity to get a first insight into the usage of interior space in a building of the Burgstallkogel settlement. A highlight was an almost completely preserved fire dog of a half moon shape, which was found in situ on the floor. In my paper I would like to present the results of the analysis of the building remains from Burgstallkogel near Großklein, not only the building from 2015 but also the results from other parts of the settlement excavated in 2013 and 2014, and put them into the
Creating a home. Ritual practice related to houses in a tarp settlement in the northern Netherlands

Author - Dr. Nauwelaar, Anniet, 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 tarp 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 terras that are found in this region: artificial dwelling mounds, which once protected their residents against floods. A tarp started with one or several houses built on separate platforms, which clustered as they were heightened, developing into single larger mounds. The tarp 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-aisled, two-partite houses with built-in byres. Excellent preservation, also of pottery and bone, enabled not only a thorough investigation of the material culture, but also of ritual practice in this settlement. This investigation was carried out only recently, between 2011 and 2015. This paper will present some of the results of the study of ritual practice. It will discuss the ways in which rituals were related to various stages of the lifecycle of a house: raising the house platform, building the house, living in it and finally abandoning the house. A conspicuous element of ritual practice was the burial of human remains in and near houses. It will be argued that burying the remains of deceased family members created ancestral grounds and also made people feel at home. Single inhumations and single 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 terras.

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

Author - Ekstrand, Susanna, SAU, Uppsala, Sweden (Presenting author)

Co-authors - Celin, Ulf, SAU, Uppsala, Sweden

Keywords: Building construction, Sunken floor hut, Viking age

Presentation Preference - Oral

During the last few years some Vendel and Viking age settlements with a large number of pit houses (sunken floor huts, ground floor houses, etc) have been excavated in Middle Eastern Sweden. Due to their construction the sunken floor huts are very well preserved and contains a lot of information of construction, building materials and interior details such as, steps, benches, ovens etc. Often the floor layer is intact and finds made from this layer can give useful information about what action actually took place within the walls. Questions to dwell upon is how the inhabitants found themselves within these really small damp, constructions, some researchers have argued that these buildings must have been almost unbearable to endure and others think they were inhabited by family. The question is, have they been lived in at all or have they been a place for daytime occupations and handcraft mainly? How can these types of buildings be understood? We think that most important is to find out what actually took place within the four walls. The paper will present a study upon the placement of entrances, building material and construction details. The houses within the study shows a great variation concerning construction and interior design details such as ovens, benches, loams, etc. Another study deals with what activities that has taken place in the pithouses. Arceobotanical analysis combined with osteology and tpid 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 09

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

Author - Dr. N. Ager, N. Agger, University of South West Jutland, Ribe, Denmark (Presenting author)

Keywords: Domestic activities, Iron Age, Settlement Archaeology

Presentation Preference - Oral

This paper will discuss the evidence of domestic activities in the Early Iron Age (500 BC - 150 AD) farmsteads of Western Denmark.

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

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

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

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

TH1-08 Abstract 10

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

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

Keywords: Archaeology, Silchester, Urbanism

Presentation Preference - Oral

In Roman Britain, domestic urban properties are dynamic spaces with constantly evolving architectural forms. The evidence for super-structure components can often be ephemeral as these properties have timber or earthen walls, which are frequently truncated by later building foundations or, as observed at Roman Silchester, by the trenches of Antiquarian excavators.

Previous research at Silchester has integrated thin-section micromorphology and experimental archaeology to characterise sediments and occupation deposits to identify doorways, roofed, semi-roofed, and open spaces within the properties in order to understand their architectural form.

Building on this previous research, this paper will chart, using a 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 hearth floors, and the division of spaces. Earlier uses of this property may include the manufacture of glass, though some doubt remains over whether this was glass or the manufacture of the vessel itself.

Furthermore, it raises questions about how the modern concept of ‘public’ and ‘private’ may obscure our objectivity in understanding these buildings. In reconstructing the interior spaces of these buildings we must be mindful that only certain elements survive, like the early baths before the introduction of the separate bathing areas. It is important to reconstruct these buildings accurately and provide an examination of two Medieval dwellings in Atlantic Scotland

TH1-08 Abstract 11

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

Author - Dr. Dempsey, Karen, Dublin, Ireland (Presenting author)

Keywords: Medieval Castles, Reconstruction, Social Space

Presentation Preference - Oral

During the thirteenth century, the hall and chamber were typically separate structures within castles complexes in Ireland and Britain. Careful examination of the architecture of medieval chambers - understood as ‘private’ spaces - has revealed that their first-floor spaces appear to have been divided into ‘rooms’ most likely using partitions comprised of timber and/or textiles. Some castles have very tangible indications of divisions such as masonry corbels that once supported wooden partitions. Many other internal divisions, though now lost, have left significant indicators of their former presence, such as the arrangement of windows; groups of windows or windowed or divided apartments that indicate a deliberate spatial organisation that allowed for the placement of private spaces.

The authors will explore the evidence of daily life and domestic activities in two houses excavated in the Lower Danube Region. The archaeological discoveries from 5th-10th centuries from the Lower Danube Region are numerous enough to sustain a discussion about what is family space and what can be considered the community space. This discussion is based on two concepts: house and settlement/village.

The problem is what we can interpret as a house and what we can consider a settlement. Generally, the archaeological reports described only similar constructed structure, settlements from this time frame seeing to be monotonous and against a discussion like that we intend to provoke.

But, in fact, discussions like: ‘how can we identify a house? what are the arguments for; what is the inhabited space?’ (it is only the pit in the cases of sunken building); what are the meanings of the objects discovered into the archaeological structure and
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 same period different spaces? are still important and in our paper, we intend to propose some possible responses.

TH1-08 Abstract 14
Beyond the cone: possibilities for exuberant buildings
Author - McCullagh, Rodierick, Historic Environment Scotland, Edinburgh, United Kingdom (Presenting author)
Keywords: architecture, evidence, reconstruction
Presentation Preference - Oral

Taking inspiration from the recent discovery of “painted” walls on Neolithic buildings at two sites in Orkney, this paper argues that buildings could be “traditional” and functional but on occasion, exuberant. A casual view of the reconstructed architecture of the 19th century, would see an homogenous dominion of the conical roof. This may represent the best fit of technology to need and circumstance but in many other aspects of life, seen through preserved archaeological fragments, we can see an exuberance of design and masterful display of skill.

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

TH1-08 Abstract 15
Reconstruction of Neolithic dwellings.
On the materials of North-West Russia (Smolensk region)
Author - Khristal'eva, Irina, The State Hermitage museum, Saint-Petersburg, Russian Federation (Presenting author)
Keywords: Dwellings, Graphic reconstruction, Neolithic
Presentation Preference - Poster

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

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

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

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

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

The complexity of the objects identification set in sandy sediments is in the absence of organic materials. The pits are determined because of their darker filling, different from the color of the surrounding cultural layer. Fireplaces and hearth are detected due to their structures (for example, plates of stone), and calinted sand, characterized by reddish or grey ash interlayer.

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

TH1-09 Abstract 01
Investigation of glass objects from Dodona Sanctuary, Epirus, Greece: an interdisciplinary approach
Author - Dr. Dikomous, Artemis, University of Nottingham, Nottingham, United Kingdom (Presenting author)
Co-author(s) - Henderson, Julian, University of Nottingham, Nottingham, United Kingdom
Keywords: Epirus, Greece, Hallenic glass, scientific techniques
Presentation Preference - Oral

Dodona Sanctuary was the major religious centre of north-west Greece, in the Epirus region, connected with the cult of Zeus Dodonaios and his wife Dione. According to ancient Greek tradition it is considered to be the oldest oracle in ancient Greek world. Archaeological evidence has confirmed continuous habitation from the Bronze Age (2600-1100 BC) to the end of the 4th c. AD. The Dodona Sanctuary flourished during the Hellenistic period and especially during the reign of King Pyrrhus when major reconstruction works took place. The Dodona Sanctuary played an important role as a political, administrative and religious centre during that period and its relationship with regions outside Greece, like Alexandria in Egypt, is well attested both archaeologically and historically. Our presentation will focus on glass found in the excavations of Pyraneio and Vouleitron which were the major political buildings at the Dodona Sanctuary.

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

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

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

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

So far, laukadian culture has been studied in the cultural-historical manner, with the focus predominantly on chronology and typology. Production, technological networks and glass use have received little discussion apart from conjectures that these beads must have been of local production due to their perceived basic production requirements, their abundance in various areas, and their analogous characteristics in the neighboring 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 EMPA 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 grit, while the cobalt blue possibly indeed locally produced. Furthermore, the archaeological context allows a discussion of the beads’ meaning and use. Their distinct appearance was intentional, possibly in order to reinforce the identities of these women within the Iapodean society, which sheds light on the existing female social roles in the Iron Age.

Bibliography:

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

Author - curator Đurđić, Iven, Archaeological museum in Zagreb, Zagreb, Croatia (Presenting author)
Co-author(s) - Franjić, Ana, UCL, London, United Kingdom
Keywords: archaeometry, glass objects, Iron Age

Presentation Preference - Oral

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

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

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

The quantitative analysis focused on the possible difference in raw materials, technological recipes, and craft traditions of the (chronologically and culturally) distinct artefacts, in order to look at the variability in glass production and relationship between the various bead groups dated to Early (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 Bluest from the Sky: Hellenistic monochrome glass in La Tène Europe

Author - Dr. Venclova, Natalie, Institute of Archaeology, Prague, Praha, Czech Republic (Presenting author)
Keywords: glass, Hellenistic, La Tène

Presentation Preference - Oral

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

This paper focuses on two important settlement sites with abundant craft activities in two sub regions of the area: Berching-Pollanten (Bavaria), only about 30 km from Marching and best known for its iron working evidence, and Bad Neuheim (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 backscatter electron microscopy. In combination with further typological and technological studies, it is possible to address important questions on chemical composition (different groups of raw material) and fabrication details, as well as on regional supplies and the circulation of objects.

References:

Current research on La Tène glass artefacts from Central and Southern Germany

Author - Prof. Dr. Schaefer, Andreas, University of Bamberg, Bamberg, Germany (Presenting author)
Co-author(s) - Dr. Scharff-T. Werner, Germany
Keywords: Central and Southern Germany, Iron Age Glass production, Scientific Analysis

Presentation Preference - Oral

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References:

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

Author - PhD Candidate Rolland, Joxe, UMR 8215 - Trajetcultes, University of Paris 1, Nantes, France (Presenting author)
Keywords: experiment, LA-ICP-MS, La Tène Glass

Presentation Preference - Oral
Interpreting the Archaeological Record

TH1-07 Abstract 07
Raw The role of glass bangles in Late Iron Age society in central Britain.
Author - Dr. Bruhn, James, Historic Environment Scotland, Edinburgh, United Kingdom (Presenting author)
Keywords: Glass bangle, Iron Age Scotland, Iron Age society
Presentation Preference - Oral

One of the most ubiquitous objects found on Late Iron Age sites in southern Scotland and northeast England are glass bangles. These objects have largely been studied in isolation in Scotland, devoid from comparison with their continental equivalents. This paper will describe the history of Scottish glass bangle studies. It will then review glass bangles in a British context and how they relate to their continental equivalents. To address their role in Late Iron Age society in Scotland, the paper will focus on the large collection of bangles from Traprain Law, an Iron Age Oppidum, and how this collection of objects compares to the wider distribution pattern of bangles in southern Scotland. It will argue that these glass bangles offer an important insight into the complex negotiation of identity occurring on the Northern Frontier of Roman Britain in the Late Iron Age. Glass bangles became a way for the indigenous communities to promote their local importance by displaying their connections with larger social networks. By transforming imported foreign material, in the form of both raw and reused glass from Roman sources, into items which catered for local tastes, bangles became a powerful symbol. The glass bangles highlighted a connection to Rome but also acted as a statement of the indigenous populations desire to shape and mould that relationship in a way that was locally beneficial.

TH1-09 Abstract 08
The Irish Glass Toggle: Exploring the function of an enigmatic Iron Age ornament
Author - Jordan, Alexis, University of Wisconsin-Milwaukee, Milwaukee, United States of America (Presenting author)
Keywords: glass, Ireland, Iron Age
Presentation Preference - Oral

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

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

The aim of this paper is to bring the Romano-British glass bracelets into the discussion of the Iron Age Continental glass bracelets. The paper suggests that the British glass bracelets were Roman-period 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 stood out in their production technique compared to bracelets made on the Continent. The start of the production of the seamless glass annulars in Britain corresponds with the decrease in the circulation of these glass adornments on the Continent. In the late first century BC, the Continental glass bracelets gradually stopped being produced, yet the craft reappeared in Britain, which had no history of glass bracelets’ production prior to the Roman invasion of Britain in AD 43. The presentation attempts to answer the question as to where the inspiration and skills for the British glass bracelets came from by discussing their production technique. The experiments conducted with the modern glassmakers and the close inspection of the British glass bracelet fragments reveal that the British annulars were most likely produced in the similar manner as some of the La Tène Continental bracelet types, that is in a technique similar to that suggested by Joelle Rolland for some Continental types. However, the design of the 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
Anthemis, a material ‘culture clash’: ‘sealing wax’ red glass in Late Iron Age Britain
Author - Dr. Davis, Mary, National Museum Wales, Cardiff, United Kingdom (Presenting author)
Keywords: Britain, glass, Late Iron Age
Presentation Preference - Oral

This paper will present work carried out on the analysis of Insular Late La Tène and Early Romano-British ‘sealing wax’ red glass. This was used principally as an inlay on high status decorative bronze work, which developed from the earlier La Tène traditions in both Europe and Britain and seems to have been made of opaque red ‘sealing wax’ glass to decorate metal artefacts. In late Iron Age Britain (1st century AD), the use of inlaid red glass flourished on objects exhibiting ‘Celtic’ styles and from regions in Britain resistant to Roman occupation. The quantity of this type of material produced was also significantly greater than in previous periods. During the first century AD, in much of the Romanised world, the composition of red glass changed significantly from the high lead high copper ‘sealing wax’ type used in the Middle Iron Age and Continental La Tène pieces to the 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 ‘symphaeas’ in southern Italy, in Hellenistic red glass and in red glass from Jerusalem.

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

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 wax into the Romano-British period.

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

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

Keywords: Hellenistic glass, Mediterranean, Sandwich gold-glass

Presentation Preference - Poster

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

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

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

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

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

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

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

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

The 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, can provide significant help in localizing the workshops. Only the two specimens with figurative scene (a sacred shallow bowls), technical details and subdivision of the decorated surface.

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

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

**TH1-10 Abstract 01**

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

Author - Redovčić, Sinisa, Croatian Academy of Sciences and Arts, Zagreb, Croatia (Presenting author)

Co-author(s) - Oros Srsen, Ankica, Croatian Academy of Sciences and Arts, Zagreb, Croatia

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

**Presentation Preference - Oral**

The archaeozoology of the eastern Adriatic region is well documented through studies of faunal remains from coastal and island sites. However, hinterland is still ‘shadowed’ due to very little information available, mostly because of lack of explored sites.

Zemunica cave is situated in the Middle Dalmatia around 36 km northeast of Split, near the village of Blato. It was excavated in 2005 during rescue archaeological excavations, revealing a stratigraphic sequence from the Late Upper Palaeolithic to the Early Bronze Age. Here we focus on the archaeofauna material recovered from the deposits dated to the Pleistocene-Holocene transition and the Early Holocene.

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

Interpreting the Archaeological Record

Co-author(s) - Boroneant, Adina, Institute of Archaeology “Vasile Pârvan”, Romanian Academy, Bucharest, Romania
Co-author(s) - Bonsall, Clive, University of Edinburgh, Edinburgh, United Kingdom

Presentation Preference - Oral

The first study of the archaeozoological remains from Icova was made 40 years ago by Alexandra Bolosmey. 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 higher fragmentation ratios. The list of taxa identified includes molluscs (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 Carnus elaphus (red deer) and Capreolus capreolus (roe deer). By weight, deer remains are the most important, followed by wild boar. Other taxa represented are Rupicapra rupestris (chamois), Bos/Bison (aurochs/bison), Ursus arctos (brown bear), Canis lupus (wolf), Meles meles (European badger), Lutra lutra (European otter), Mustela sp. (marten), Felis silvestris (wildcat), Lynx lynx (lynx), Castor fiber (European beaver), Lepus europaeus (European hare). The dog (Canis familiaris) is the only domestic mammal present in the site. Cut marks identified on the bones show that dog contributed to the food supply, which was also observed in the Mesolithic levels at Lepenski Vir, Vlasac and Padina.

* This work was supported by a grant of the Romanian National Authority for Scientific Research and Innovation, CNCS – UEFISCDI, project number PN-II-1-U-2014-4-0519.

Icova revisited: an archaeozoological perspective

Interpreting the Archaeological Record

Co-author(s) - Boroneant, Adina, Institute of Archaeology “Vasile Pârvan”, Romanian Academy, Bucharest, Romania
Co-author(s) - Bonsall, Clive, University of Edinburgh, Edinburgh, United Kingdom

Presentation Preference - Oral

Ever since the discovery of the site of Lepenski Vir, it was recognized that fishing had an important role in the settlement of the Danube Gorges during the Mesolithic. The importance of wild game hunting has also been confirmed by the analyses of animal bones and emphasized ever since the first published archaeozoological reports. The issue of the role of terrestrial vs aquatic resources in the diet has been addressed from the perspective of stable isotope analysis, with somewhat contrasting results. The analyses of stable carbon (δ13C) and nitrogen (δ15N) isotope ratios have suggested that the Mesolithic inhabitants of the Danube Gorges consumed considerable amounts of fish, with gradual broadening of the dietary spectrum to include terrestrial resources at the onset of the Neolithic (Bonsall et al. 1997; 2000; 2004; Grube et al. 2003; Bondi et al. 2004), whereas the analysis of sulphur (δ34S) has suggested that there were significant inter- and intra-site variations in dietary practices (Nehlich et al. 2010). However, this issue had 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 vs fish in diet is elusive, particularly owing to the differences in mammalian and fish skeletons, and biases affecting their survival and recovery, we have attempted to address this issue by estimating their dietary contribution and nutritional potential on the basis of the sum of average weight of the minimum number of individuals for both mammals and fish. In addition, we estimated the proportion (size and number) of the economically most important fish (cyprinids, Wels catfish and acipenserids) in the assemblages from the sites of Lepenski Vir, Vlasac and Padina. Even with methodological biases concerning recovery techniques employed during the old and new excavations, and different areas of the sites they encompassed, we found that fish species composition on the three sites varied to some extent. Given the site locations, their short distance from one another and similar landscape and environmental conditions (vicinity of catchments 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.

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

Co-author(s) - Boroneant, Adina, Institute of Archaeology “Vasile Pârvan”, Romanian Academy, Bucharest, Romania
Co-author(s) - Bonsall, Clive, University of Edinburgh, Edinburgh, United Kingdom

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 Icova (Romania). This raw material seems to represent, for Eastern European, a halftim of Mesolithic. Indeed, during the Neolithic, the number of pieces made of Sus scrofa canines decreased constantly, becoming sporadic during the Chalcolithic. The typological categories identified are scrapers, bevelled tools, combination tools and adorments. Deblage remains are also present, indicating on-site task processing. Boar tusk was readily available from the animals that were killed, and analysis of the faunal remains suggests 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.

Operational strategies, animal environment of the Low Povolzhie last hunters and first breeders

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Presentation Preference - Oral

The Low Povolzhie includes the northeast Caspian Sea region, the Povolzhie steppes and the semi-desert Caspian Sea region. Following a period of aridification, a humid period began in this region around 6700 cal BC. Desert conditions were replaced by a more favorable steppe landscape. This allowed a hunting economy to function properly. All sites were located on lake shores, which were a magnet for animals. Onager and saiga antelope were hunted at watering sites in the north Caspian Sea region, onager, saiga antelope, aurochs and tapir in the steppe Povolzhie, and gazelle in the northeast Caspian Sea region. Red deer, wild boar, wolf, fox and hare were hunted to a lesser extent. Bird bones are rare in the archaeological assemblages. Geometric microblades of trapeze and segment shapes were used as arrowheads. Fish bones, including catfish, pike-perch, pike and sturgeon, 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. Hunters increased further around 5600 cal BC and aurochs and tapir 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 animals 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 tapir 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 tapir ceased in this region. The role of onager and saiga antelope became extremely small. In their place, bones of sheep and domestic cattle are found. The changed animal exploitation strategy was not related to developments within the local population. New cultures with their distinctive pottery, new raw materials and special techniques for producing stone tools came to the Low Povolzhie. These tribes hunted, but on a smaller scale. This was not an evolutionary process, but a transformation.

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

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Presentation Preference - Oral

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

TH1-10 Abstract 07

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

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Keywords: bone technology, Early Neolithic, osseous raw materials

Presentation Preference - Oral

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

TH1-10 Abstract 08

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

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Keywords: 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 transcendent 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 5700–4600 cal BC. This multidisciplinary approach aims to: (i) evaluate changes in pig management and exploitation strategies, and (ii) assess the broad social and environmental implications during the Early Neolithic in the northeast Iberian Peninsula. Our results indicate that the diet of Sus scrofa was substantially modified by Neolithic societies in the northeast Iberian Peninsula. We interpret this change as a result of the new selective pressures to which the wild

species were submitted by humans during their domestication. The impact of this change on management strategies is also assessed, taking into account the different work processes and social relationships involved in the management of this resource.

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 stock with wild progenitors. In order to understand whether these processes ever happened, data on the distribution of the wild ancestor of cattle in the region are important, as well as its features observed from skeletal remains and archaeological contexts of discovery. Although scarce, aurochs were present in the Central Balkans during the Late Pleistocene, as can be judged from the faunal remains from Palaeolithic sites and alluvial deposits. The steppe bison, another large bovid of comparable size and ethology, was more frequent. Its prevalence is documented both by the number of sites where its presence has been confirmed, and by the ratio of bison and aurochs remains at sites where both species were found. Steppe bison became globally extinct towards the end of the Pleistocene, although the more precise timing of its disappearance in the region is not known. It can be hypothesized that aurochs consequently became more numerous and substituted bison in an empty niche, but there is also a lack of data on the presence of aurochs at the end of the Last Glacial and the beginning of Holocene. The remains of aurochs from Pleistocene 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 Velovica 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 component of settlement animal bone refuse, but mostly in modest proportions, show that the intensity of hunting was not high. Nevertheless, owing to its cognition to domestic cattle, potential/local domestication trials and hybridization, or solely to its impressive appearance, the significant symbolic role of this large bovid, one that is going to endure throughout prehistory, was probably already established already at the onset of the Neolithic. In this respect, the sudden and synchronous appearance of aurochs skeletal remains 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 Pietrela, Romania (5th millennium BC) and the return to wild resources

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Keywords: Copper Age, fishing, Romania

Presentation Preference - Oral

The Chalcolithic period (5th millennium cal BC) in the area of the Lower Danube River is of particular interest for archaeologists because of evidence of very early metallurgy, incipient social stratification, and (at many sites) a renaissance in the exploitation of wild animals in the subsistence economy (although domesticated animals continue to be important). Since 2002, excavations at the tell near Pietrela, Romania (on the floodplain of the Danube River) have produced abundant evidence of the exploitation of fish and other aquatic animals both in the form of faunal remains and some of the technologies used to procure them. Although examples of very large catfish and cyprinids are common in the assemblage, wet sieving of soil samples has also revealed the presence of numerous bones from very small fish species - indicating a very intensive exploitation of aquatic resources by the site’s occupants. Understanding the fishery is essential to understanding how the settlement was provisioned and to questioning why wild resources once again became so important at some locations during the Copper Age.
TH1-11 Abstract 02

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

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Presentation Preference - Oral

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

Thanks to new research the fort area now emerges as an integral part of Walichrum from the 7th 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

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Keywords: early medieval, geoarchaeology, urbanisation
Presentation Preference - Oral

The settlement areas of early medieval towns have in the past been subject to generalisations of interpretations of their character, layout and function. Changes in the towns’ dynamics over generations of town dwellers have not often been addressed, while these changes are the key to a multi-faceted understanding of the daily lives of the inhabitants, and how these may have changed over time. The complex nature of urban deposits has in some cases prompted excavation using a random division in pits, while an opposite reflex is necessary to produce a clearer phasing of each separate case. Before comparisons are made, the individual life trajectory of each town should be understood to its fullest.

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

With current geoarchaeological methods, it is possible to record and interpret separate phases of each town in more detail, to collect finds accordingly and source dating materials more securely. It is also possible to add information about well-dated but unclear phases of the towns, such as in the case of homogenous deposits, so-called dark earths. The latter often occur precisely at the beginning and perceived end of early medieval towns, making their interpretation a challenging endeavour. Not every layer or deposit or nuance is captured by geoarchaeological means, but more details can be added to the state of art of each individual town, perhaps even narrowing down the scope to particular changes at the scale of generations. Not just a diachronic approach, but one that takes into account diversity on a horizontal level as well, is necessary to further grasp the complexity of these urban entities. A combination of a diachronic approach and spatially informed one on a micro-scale yields archaeological results with the strongest interpretive value, and, if integrated into the research project design from the very beginning, provides a way to contextualise the enormous amounts of material these sites produce.
TH1-11 Abstract 04
Changing Places: a comparative discussion of London and Tours in the Early Medieval Period

Author - Donnelly, Harriet, The University of Sydney, St Leonard's, Australia (Presenting author)
Keywords: early Medieval, settlement patterns, urbanism
Presentation Preference - Oral

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

TH1-11 Abstract 05
A Subversive Urbanism: Venice in the 9th century

Author - Catulo, Diego, Stanford University, Stanford, United States of America (Presenting author)
Keywords: Adriatic, Emporia, Venice
Presentation Preference - Oral

How did Venice’s urban landscape look like 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 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 uncontaminated areas of the mainland in order to be free and safe. In the islands the newcomers were able to build a place that - according historical narratives - was ideologically and materially comparable to the old Roman sites.

The uncovered wood structures of the early medieval houses, for example, have been described as a poor reaction to a supposed lack of building traditions. A recent archaeological assessment, on the contrary, has shown how these buildings were comfortable and perfectly designed for the lagoon environment. Clay foundations and wood structures were technically appropriate for a cold and humid setting. The choice of the lagoon itself was not forced. The settlement patterns were not exogenous, but followed precise social and economic designs. The settlement followed the movements of the lagoon and the river mouths: the first Venetians tried to occupy the more distant islands in order to control both the maritime and the riverine sailing routes. Artisanal productions (glass goblets, parchments, metal crafts) were not subsistence economies; the emporia layout of the sites allowed the circulation of raw materials, techniques and skilled people.

Venice was a proto-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 unclean, are not good ingredients for the myth of the origins or for the official history of a superpower. In the 8th and 9th centuries the Venetian lagoon was a proto-capitalistic site with a strong maritime tradition and a flourishing commercial and artisanal production. These were not old Roman traditions, but new and innovative ones. Venice, in fact, was a proto-capitalistic site.

TH1-11 Abstract 07
The origins of urbanization in the forest-steppe zone of Western Siberia

TH1-11 Abstract 06
How and when Venice became Venice. Framing the urban development of a trading town in Italy

Author - Dr. Piazzina, Annamaria, Ca’Foscari University, Venice, Italy (Presenting author)
Keywords: Early Medieval Venice, Trading Town, Urban Identity
Presentation Preference - Oral

TH1-11 Abstract 03
Interpreting the Archaeological Record of London and Tours in the Early Medieval Period

Author - Changing Places: a comparative discussion of London and Tours in the Early Medieval Period

TH1-11 Abstract 04
Changing Places: a comparative discussion of London and Tours in the Early Medieval Period

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Keywords: early Medieval, settlement patterns, urbanism
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TH1-11 Abstract 07
The origins of urbanization in the forest-steppe zone of Western Siberia

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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 protocivilizations 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 areas 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 in the early Iron Age the middle of the 1st millennium AD the number of settlements increases. In the forest-steppe zone of Trans-Urals they number more than 100. One-third of excavated settlements are multicultural, from 15 to 20 fortified settlements belonged to carriers of certain ethnic traditions. Within this period the dynamics of fortification is well traced. For the first time in the early stage continue 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 fences around the residential area. Most of them could not perform a defensive function. Already at that time there is specialization of fortified settlements as centers of metalworking, import, exchange, cooperation of multicultural population. By the 5-3 centuries BC increasing complexity of fortifications is recorded. The number, height and power of the earthen ramparts with wooden fortifications in the form of the palisades, fences, walls, cranes, towers and surrounding ditches are increased. There is not only a general tendency to strengthen the fortifications, but also to the complexity of their structure: double-, triple area settlements are emerging. The search for new forms, combinations of known elements and structures to enhance the overall defensive capability is noted. The material of some fortresses is of Chinese and Central Asian origin indicating them as centers of trade and exchange. The fortresses became the centers of origin and transmission of cultural innovation, and the process of urbanization and the resulting changes in the ancient and medieval societies to the greatest extent determined the development of the region.
The early urban development in the steppes

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Keywords: Chasarian Kaganat, steppes, urban development

Preparation Preference - Oral

The earliest urban sites in the East European steppes date to the Early Medieval Epoch end, in particular, to the time of the Chasarian Kaganat (from the 7th to the 9th cc). So far their number has been limited to several, now famous, urban developments located along the Don river such as Sarkan-Belaya Vezha, Pravoobrezhnoye Taimyryanskoye gorodishche (urban development), and Semikarakorskoye gorodishche. Numerous urban developments in the adjacent areas of the foreststeppe Podporine (the Don basin valley) and Prilepnoevo are representative of the material culture of the Don Alan, Bulgur, Oguz, Pecheneg, and Slavs. Those of the Crimea and the Northern Caucasus associate with the culture of local sedentary populations who were agrarians. Only those sites that are located between the Don and the Volga belonged to the Chasarian Kaganat proper, hence it is these urban developments that can be related to ethnic Chasarians. The last decades saw simultaneous discoveries of several sites of the Chasarian Kaganat in the Volga-Don steppes. In the late 1990s at a kilometre distance from the Pravoobrezhnoye Taimyryanskoye 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 of Sarkan-3 as a part of the whole agglomeration complex that includes also Sarkan and Pravoobrezhnoye Taimyryanskoye 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 Samosedka in the Volga estuary. According to the archaeologists that led the excavations, the geographical position and the character of the constructions of the Samosedka lower layer suggest that these may be the remnants of the town of Itil. In 2008 followed the opening of the Bashanta gorodishche that contained the ruins of constructions made of white clay shell stone and tile fragments parallel to those found in late 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 98.3% and 600-662 at 95.4%) and (672 - 782 at 98.6%), resulting from the analysis carried out by Labirt Laboratory of the Kiev University, Bashanta turns out to be the earliest of the urban developments in the East European steppes dating to the time of the Chasarian Kaganat. The excavations of 2000-2005 of a number of late medieval urban centres and developments in the Lower Volga, undertaken by the Khatchikov Institute of Archeology of the Tatarstan Academy of Sciences, resulted in discovering cultural layers dating to the Chasarian Epoch. As a number of the recovered finds show, the Chasarians started to dominate in the area at the time of the Chasarian Kaganat. Thus, further effort along the lines will contribute to an understanding of early medieval urbanism in the archeology of Europe.

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

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Keywords: - large unfortified settlements - early urbanization, Upper Volga

Preparation Preference - Oral

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

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

Large unfortified settlements of Suzdal land have much in common with the sites in different regions of Rus', which were earlier attributed as proto-urban centers or trading centers on the river routes. The difference is that the former could hardly be regarded as the sites with the central functions. The main concentration of the whole area, the distance between the neighboring sites varied from 6 to 14 km. Another important point is that large unfortified settlements couldn't have been used for the control over the water-routes. They are located on the small rivers, often – on the woodlands.

Even now the sites of Suzdal Opole lead to re-evaluation of the interpretation of sites, which were formerly regarded as emporia or proto-urban centers in the Upper Volga, like Timiroevo and Sarckoe near Rostov. Their status in the settlement hierarchy probably was overestimated. New investigations reveal, that long-distance trade in the Upper Volga in the Viking age wasn't monopolized by one single center - it developed through the formation of considerable wide networks of sites.
TH1-11 Abstract 14

Hot beds? Manure pits in medieval Ackerbürgerstädte

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Keywords: agrarian towns, hot beds, late medieval

Presentation Preference - Oral

Dutch urban archaeology has uncovered hundreds of pits dating from the thirteenth to fifteenth century containing animal manure mixed with bedding straw. On occasion an array of manure of pits has been uncovered. The traditional explanation is that they were used to store manure for agricultural use. This explanation is questionable given that manure requires aerobic conditions and frequent turning for it to be transformed into useful fertilizer. A dung heap rather than a manure pit would be expected.

TH1-11 Abstract 15

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

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Keywords: National archaeology, Urbanization

Presentation Preference - Oral

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

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

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

Keywords: Archaeological record, Odense, urban development, Viking Age, Iron Age, Iron Age Scandinavia.

Presentation Preference - Oral

Recent research has come to challenge the universality of this link between urbanity, centrality and complex metalworking. 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 and new identifications are offered as a result. The results show that the workshop produced a range of items including bits for horse harnesses, ornamented loci and dress ornaments. In each case the finished product demanded a range of specialized materials, and thus presumably the skills and expertise of a group of craftsmen. This need for collaboration between specialized artisans was a vital reason why permanent communities of urban character emerged in ports with privileged economic location and complex metalworking demands. This offers the basis of a revised model for the emergence of urbanism in the North Sea region.

Keywords: Complex metalworking, Multimetalty, Urban package

Presentation Preference - Oral

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

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

Presentation Preference - Oral

The current paper aims to highlight the differing strata of localities on which the establishment of the network of Viking Age towns rested. This is to be understood as the possible developmental dependency the bigger and perhaps more centrally positioned early towns might have had on the smaller and more resident types of localities. Special attention will be paid to the different kind of production sites which has been registered in South Scandinavia. Quite often these sites are characterized by a special type of archaeological structures and by being topographically interwoven with the more elaborate agenda of the (local) aristocracy. Craft and centrality (urbanity) must be nuanced and that perhaps multimetal craftsmanship should be reconsidered as an urban role. The thesis project “From Crucible and onto Anvil” started in 2015 and focuses on sites housing remains of multimetal craftsmanship dating primarily from 500-1000 AD. Within the project a comprehensive survey of sites will be used to evaluate the presence of multimetal craftsmanship in the landscape. Sites in selected target areas will also be subject to intra-site analysis focusing on workshop organisation, production output, metalworking techniques and chronological variances. A theme in the project is to elucidate the conceptual aspects of complex metalworking. The term multimetalty is used to analytically frame all the societal and economic aspects of multimetal craftsmanship. Through this inclusive perspective both the craftsmanship and the metalworkers behind it are positioned within the overall socioeconomic framework. The metalworkers, their skills and competences as well as the products of their labour are viewed as dynamic actors in the landscape and on the areas of political economy of the Late Iron Age.

The survey has already revealed interesting aspects concerning multimetal smithing and urbanity. Although the multimetal sites do cluster against areas of early urban development there are also other patterns emerging. Multimetal craftsmanship – both as practice and concept – was well represented in both rural peripheral settings and urban crafts-milieu. This means that the role of multimetalty as part of an “urban conceptual package” is crucial to investigate. Such an approach will have the dual ends of properly understanding the craft and its societal implications, but also further the knowledge of the phenomenon of urbanity as a whole. Was multimetal smithing part of an “urban package” that spread into the rural landscape? Did the multimetalty differ between urban and rural crafts-milieu? How does early urbanity relate to the chronology of multimetal craftsmanship?

This paper aims to evaluate the role of multimetalty within the “urban package” and discuss the role of complex metalworking in the establishment of urban areas of interaction in Late Iron Age Scandinavia.
TH1-11 Abstract 21
Production and Distribution networks in the Diocese of Tuam, West of Ireland, AD 500-1000
Author - Tighe, John, Trinity College Dublin, The University of Dublin, 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 Doonoughour, a coastal site where exchange happened in the eighth century. The primary mode of the production of crops is thought to have been by buying in the grain, as there is a lack of evidence for on-site production with the grain samples excavated being entirely free of chaff. The site, and possibility others like it were not permanently used, but seems to have been occupied between late spring and early autumn, the very same as the main sailing season for much of Europe.

This form of exchange may have been brought into fruition as increased specialisation of production coupled with increased opportunities to exchange. This may have had a direct impact on the decline of the importance of the cow can be seen as a move away from the type of economy, widespread in pre-Roman Europe, where an 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 Cualhalogue, 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 ‘cities’ to describe sites such as Kilclare, has smeared 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 Doonoughour 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 Pirenne, Weber, Vehulst and others.

Today we agree that the take-off of the successful towns can be related to the organisation and stimulus of trade in the context of power in the 10th and 11th centuries. The debate remains however on how to understand the evolution and character of the urban phenomenon before the 10th-11th century. This debate will always tend to suffer from both teleological thinking towards the road of success and the stress on the question of continuity between Roman centres and later towns. The main problem regarding our archaeological understanding of urban life, fabric and functions seems to be that they can have totally different material translations that might not always be recognisable from the modern perspective. The question is therefore maybe what different forms urban life and functions could have and which methods we need to identify these.

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

Classical views 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?
TH1-12 Abstract 01

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

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Keywords: Beads, Cemetry, Eneolithic
Presentation Preference - Oral

The Eneolithic adornments from the Sultana-Malu Rosu cemetery represent a particular case of archeological artifacts, mainly because of their reduced dimensions, but also from the typological perspective, in this cemetery being present almost all types of beads known for this period in the Balkans. Two communities that were belonging to the Bolan and the Gumiinta 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 anthropological 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 symbolic point of view, but also to interpret the ways in which they were worn, combined and deposited in the graves. Our approach will cover use-wear analysis to identify the meaning of this beads, and to determine the social, economic, gender, and religious connotations of this kind of artifacts.

This work was performed through the Partnerships in Priority Areas Program - PN II, developed with the support of MEN - UEFISCDI, project no. PN-II-PT-PCCA-2013-4-2302.
Women’s funerary dress in 12th-century North Estonia.

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

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

On 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.

Annular brooch in the context of the late mediaeval costume and worldview

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

Apart from their function as a type of jewellery, annular brooches served another specific function in the context of the costume - they were used to fasten the 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 Goa will be placed in the context of the costume complex. We shall also contextualize it within the process of changes in the fashion that brought about this type of outfit in the first place, which spread from Byzantium in the 12th century to countries in Western Europe, and subsequently also throughout Europe, reaching also the Near East with the Crusaders. Annular brooches remained in use until the 15th century, reaching the heyday of popularity in the 13th and 14th centuries.

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

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

Th1-12 Abstract 06

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

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 skirts, coffins uhdyhlyer or clothing accessories (ribbons or shoes).

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

Funerary garment of the first woman (coffin No. 9) was the silk, long apron dressed on linen shirt, which cuffs were decorated with ribbons. Apron was made of 26 pieces (simple textile with plain weave 1/1) having different sizes and shapes (rectangles, triangles, squares). At the lower edge of the apron was silk frill 90 mm wide. Apron was sewn in silk threads.

Repeated use of that garment confirm the tight seams connecting the individual elements. Costume was completed with long, silk, knitted gloves and shoes with textile uppers. Upper shoes were made of patterned fabrics and decorated with ribbons. Second woman’s garment consisted of a silk dress with a complicated cut and numerous hair-ornaments. The dress consisted of a bodice with long sleeves and seen into it, heavily a gathered at waist long skirt. The dress was seen a dense, carefully stitch.

Bodice consisted of 12 elements, two at the front (front left and right), the two at the arms (constituting mirror images of each) and the facing at the left and right rear portion (also constituting the 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 silver pillow-case. Pillow-case 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 sithe the front or rear edge is silk ribbon. The band is now a dark brown color. In addition, between the edges with the ribbons was seen decorative fringe.

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

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

Author: PhD StapanianEliana, Daia, PI Vita Antiqua, Vilnius, Lithuania (Presenting author)
Keywords: construction, costume, jewelry

archaeologists, having found ancient jewelry in the burial monuments, most often regard it as a decoration element, classifying and typologising it according to the shapes and ornamentation. Mostly only the metal decorative details remain from all the attire set or, generally speaking, costume. It is not an easy task to recreate the costume itself with no preserved organic material - textile and leather, though the task is made easier by knowing the jewelry’s relative position to the skeleton.

In this way, the position of the brooches makes it possible to guess what kind of clothing was pinned with it - laps of the blouse, sides of the coat, corners of the cloak; pins with pendants and chains tell us the style of the woman's dresses; the shape of the bracelets let us understand the cut and the length of the sleeves; some types of neck rings let us assume about their function of fastening the clothes; decoration details in the area of the head give an image of the shaping of hair or one or another variant of the headgear; even the rings, their decorations, the contents of the bead necklace may indicate the ownership of a certain person. It is noted that among thousands of archaeological findings, despite their stylistic uniformity, specific to one or another chronological period, there are no identical items; all differ in both size and ornamentation, thus being a possession of a certain person, they may have been recognised by others and used to prove an absent person’s delivered messages’ validity.

Sometimes the dead are buried wrapped in the sheet, which was also fastened with brooches or pins; also sometimes additional jewelry (several neck rings, headbands, rings) was placed into the grave and not always in the anatomical order, but beside the head, on the legs. This aggravates the research of the costume’s construction.

Textile researchers determined that the fabric for the clothes until the Medieval times were woven with plain colors, not striped, not checkered; the patterns were made using the yarns of one color for the warp and another color for the weft, the edges of the clothes were reinforced with woven multicolored bands. In this plain-colored costume the brass and silver jewelry would especially splendidly expose. Themselves being the works of art, they had another, much more important function – the formation of the clothes. The jewelry, the connection and fastening of its details.

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

TH1-12 Abstract 09

Costume of deads or costume of livings?

Author: Dr. Ciuperci, Bogdan Iosif, 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 medieval, 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 (sometimes as a certainty) of the costume of certain community/group/ethnic. Discoveries from settlement where never taking into consideration as a relative source for such debate. But there are epoche when we do not have cemeteries, archeologists preferring to excavate the cemeteries. Such a situation is in Lower Danubur region in the 6th-10th centuries. So this is a good situation to a wider kind of questions relating the costume. Costume of a person? Of a group? Of an elite? Of the other, non-elite? Of the dead? Of the living? Of the image of the buried person? Of the image of the image (weddings), and corporate events.

Weing a costume with the Zupan in Belarus during the partitions of Polish-Lithuanian Commonwealth was a symbol of nobility, patriotism, symbol of freedom. Zupan has evolved into a costume component wearable by participants of revolt for independence. After the destruction of the nobility as social class, Zupan has transformed into a costume of the gentry's suit.

TH1-12 Abstract 10

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

Author: MA Mech, Anna, University of Warsaw, Warszawa, Poland (Presenting author)
Keywords: jewellery, Roman Africa, Roman mosaic

Presentation Preference: Oral

At the beginning of 2nd century AD a special form of art appeared in Roman Africa - figural mosaics. They depicted both mythological scenes and everyday life and were displayed in public places and private estates of influential landowners. Among these works of arts, those with representations of landowners, their wives and workers draw particular attention. The hierarchy of the 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 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 landowners and their wives is emphasized by clothes and jewellery which they wear, striving 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 emblems for jewellery (pyxides) which are known status symbols already on Classical Greek grave-stones.

TH1-12 Abstract 11

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

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

Presentation Preference: Oral

Zupan - one of the oldest components of the costume clothing by the elite of the Belarussian society. From the 10 and the beginning of the sixteenth century Zupan was a component of the military costume, was functional, warm, made of wooden fabrics and quilted. Over three hundred years from the end of the XVI and to XVII 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 begun to sew from precious silk, velvet textiles, 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 life.

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

Wearing a costume with the Zupan in Belarus during the partitions of Polish-Lithuanian Commonwealth was a symbol of nobility, patriotism, symbol of freedom. Zupan has evolved into a costume component wearable by participants of revolt for independence. After the destruction of the nobility as social class, Zupan has transformed into a costume of the traditional male clothes. 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.

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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 as. In many instances, special grave robe was replaced by casual clothes.

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

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Keywords: burial rites, headwear, Migration period
Presentation Preference - Oral

In 2007-2010 the Institute of archeology of the Russian Academy of Sciences has conducted the archaeological investigation of the Migration period necropolis Bolshoy Davydovskoe 2 in Suzdal Opole. In the small cemetery 18 burials with 23 burials were excavated. They performed the role of inhumation. Funeral rites, 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. 2 women were buried wearing head corollas with temporal rings. These burials contained fibulae, which could be a part of the eastern Slavs. Martynovka-type ornaments come also from several nomadic burials. Today there are two main hypotheses explaining the fact that the same attire was used by different ethnic groups of population. According to the first, this assemblage marked the formation in the Dnieper region of a new social identity and manifested the belonging of its owners to a certain socio-political structure. According to the second, it reflected the emergence of well-defined set for ceremonial purposes. 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 enameled ornaments and the Martynovka-type female attire show significant similarities in the structure and in the forms of a number of artifacts. Perhaps it reflects a continuation of local costume traditions (probably in a cost 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 metadical-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 (Kizjiang) and Dulan (Grihag). Because of its technical features (warp-faced compound tabby) is obvious that they were made in Chinese workshops. Some components of the motive depicted on these textiles are pure Sasanian (animals decorated with flying ribbons, pearls, medallions), but after analysis of the Chinese weaving, I assume that other aspects had been rooted in Chinese tradition (for example antithetic position). These two schools of weaving were under influences of each other especially because of Sogdian trade activity on the Silk Road. The Sasanian-Chinese convention was introduced into Central Asia in 8th Century (especially to Sogdiana), and then was adapted in Muslim and European art.
The dress has an important place in any research about people from particular time period and location, as it holds a lot of information about its wearer. In historic and ethnographic literature dresses have long been recognized as an indicator of group affinity. The paper is with the use of available knowledge from burials, literature, and images to draw the possible look of the well off Grobin woman in the 7th - 8th century. Unfortunately, during this period, mainly cremation burials are used for women, thus adding to the difficulty of reconstructing such dresses. Some later evidences from Sweden and Denmark are used, although with limitations, in the process also local evidence to Scandinavian fashion has been detected and further analysed, thus trying to determine how far one has influenced the other. It must be noted that this is only hypothetic version lacking definitive proof in form of actual archaeological finds, although backed by strong supporting evidence.

A bstract 19

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

TH1-12 Abstract 18

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

Author - PhD Varatnikova, Aksana, National Academy of Sciences of Belarus, Minsk, Belarus (Presenting author)
Keywords: costume, decorations, medieval
Presentation Preference - Oral

Exposure collections of famous archaeologists Ljudmila Duchta and George Shlytova in the Department of museum ancient Belarusian culture emphasizes the aesthetics of medieval clothing. Group objects (more than 100 units) with mounds of Polotsk land frontier emphasizes ethnic aspects of development Middle ages (suspensions types, heads). On a material settlement Maslovichi during the XII-XIII centuries is clearly the organization of agricultural and solar symbols in stable circuit (zoomorphic images of the horse, crescent). They have evolved and entrenched in artisan products XIII-XIV century. Borderlands allows materials to demonstrate a certain stage of coexistence of eastern European tribes, exposure to stress by means of a multiethnic concentration of a vital force. The headdress usually points toward the age, social status of the diseased. A headgear with the headdress (Ural-Kazakhstan zone). Two types of head adornments have been identified: headgears with and without hanging ornaments. The report focuses on the work of the Smolensk archaeological expedition undertaken in the summer of 2015. The purpose was to determine the development of the area in ancient period. A pit filled with waste jewelry production middle – 2nd half XI century was found. In the fill of the pit contained many fragments of smelting crucibles, and also some almost entire instances. In addition, were found metal objects associated with jewellery production. The report provides a description and analysis of all these findings, the mass and concentration in the small hole indicate the presence nearby of areas with ancient jewelry manufacturing. These findings allow us to make important conclusions and to supplement information about the city’s history.

A bstract 20

Andronovo Costume: Headgear and Ritual

TH1-12 Abstract 20

Andronovo Costume: Headgear and Ritual

Author - Senior Fellow Usmanova, Emma, Sayyara Archaeological Institute, Reserve Park “Ulytau”, Karaganda, Kazakhstan (Presenting author)
Keywords: Ancestral relic, Andronovo culture, Headdress
Presentation Preference - Poster

Female’s costume attributes of Andronovo culture consist of jewelry, woven fabrics fragments and leather, mainly belong to the head decorations. Andronovo community is assembling of steppe cultures of Inner Eurasia belonging to the Bronze Age dated to 2500 - 1300 BCE. Thus far, approximately 30 burial sites have been investigated that contained preserved remains of female’s headdresses (Ural-Kazakhstan zone). Two types of head adornments are identified: headgears with and without hanging ornaments. A headdress constituted the main part of the costume, which is represented by the marked top of a head as a place for the concentration of a vital force. The headdress usually points toward the age, social status of the diseased. A headgear with the minishaped tassels 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.

A bstract 21

Peruvian textiles in Warsaw National Museum

TH1-12 Abstract 21

Peruvian textiles in Warsaw National Museum

Author - MA Kosasowska, Dominika, University of Warsaw, Otwock, Poland (Presenting author)
Keywords: Paracas, textiles, Wari
Presentation Preference - Poster

Four fragments of pre-columbian textiles are part of Warsaw National Museum’s collection. Two of them are colorful embroideries depicted flying creature characteristic to Paracas culture (late Neopalladion: 500 B.C. – 200 C.E.) and other two are tappit fragments weaved in Yari state (500 -1000 C.E.). Embroideries (plain stitch looped behind) are similar in size and colour: it is very probable that they were pieces of the one material. Analogical fragments are part of collections of Metropolitan Museum of Art in New York. These types of embroideries were depicted on the big blankets - mantles, which were part of the funeral bundles. Two tappit fragments were originally sewn into the small purse (trapezium in shape), which were also typical burial object. Its ornamentation is very schematic – geometrical, colorful designs. Pre-Columbian textiles fragments from Warsaw National Museum are very well preserved and they are one of the most beautiful Peruvian fabric in polish collections.

A bstract 22

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

TH1-12 Abstract 22

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

Author - Elina, Irina, Institute of Arheology of RAS, Moscow, Russian Federation (Presenting author)
Keywords: 17th century, collar, Novodevichy Convent, Costume complex (clothes and its attire)
Presentation Preference - Poster

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

Phelonion (a sleeveless vestment) had high solid collar of a trapezoidal shape. Trapezoidal shape for the collar is characteristic for priests’ garments (cloak). Preserved in the burial pieces of gold embroidery and the presence of spherical buttons, buckles, their location in the burial give the possibility to partially reconstruct the shape of a phelonion. The main fabric of phelonion has not been preserved, but the position of the buttons in the burial lets assuming that the cloak was long, and its front edge was fastened with buttons. This is typical of the ancient type of phelonion.

Based on these studies a color graphic reconstruction of ornamental patterns and design of the collar was performed. Phelonion collar was performed by high-end skilled workers, and certainly is a striking example of the Russian decorative art. Ornamental pattern of the collar and the nature of gold embroidery execution relate to the 17th century.

A bstract 23

Jewelry from Germanic graves in Krakovany – Stráž (Slovakia)

TH1-12 Abstract 23

Jewelry from Germanic graves in Krakovany – Stráž (Slovakia)

Author - Mgr. PhD Danova, Miroslava, University of Trnava, Department of Classical Archaeology, Trnava, Slovakia (Presenting author)
Co-author(s) - Krupa, Vladimir, Malvazinska Archaeological Museum Piešťany, Piešťany, Slovakia
Keywords: decorating techniques, golding, Krakovany
Presentation Preference - Poster

The Malvazinska Archaeological Museum in Piešťany (Slovakia) acquired golding from grave of noble person in Krakovany – Stráž (Slovakia). The ring was found by brickwork employees in 1930’s but it have disappeared for almost 80 years. Analysis of decoration techniques confirms that the ring comes from Germanic workshop inspired by Romans. Belt decorations made of silver, golden and silver clasps from the grave II are decorated with identical motifs.
Burying deceased parishioners beneath the wooden church floor was a common practice for approximately for 50 years at the church of Køyli, 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.

The funeral attire at Køyli 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 clothes 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.

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Excavation of the leather and the individual was conducted using water, soft brushes and tools. When the first layers of clay and sand were removed it became apparent that this was in fact an individual buried in a leather jacket. In order to fully understand the leather; that seemed to be primarily concentrated around the upper body. The leather was much degraded and a decision was made to lift the entire upper body in a block and continue the excavation in the conservation studio. The leather jackets' journey through conservation

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Keywords: leather, conservation, leather jackets

Presentation Preference - Poster

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

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Keywords: costume, Merovingian, textiles

Presentation Preference - Poster
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 - Ulanoewka, Agata, Polish Academy of Sciences, Łódź, Poland (Presenting author)
Co-author(s) - Siennicka, Małgorzata, The Danish National Research Foundation’s Centre for Textile Research

Keywords: Bronze Age Europe, Bronze Age Mediterranean, textile production

Presentation Preference - Regular session

This paper aims at discussing the significance of wool production in the European Bronze Age. The focus is on discussing which textile production, trade, environment, husbandry and society

Keywords: sheep-husbandry, society and economy, wool production

Presentation Preference - Oral

This paper addresses the significance of wool production in the European Bronze Age. The focus is on discussing which aspect of 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, and how 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.

Keywords: Traditions and innovations in textile production

Presentation Preference - Oral

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

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

Author - Dr. Sabatini, Serena, Gothenburg University, Göteborg, Sweden (Presenting author)
Co-author(s) - Bergbrant, 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 aspect of 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, and how 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.

Keywords: sheep-husbandry, society and economy, wool production

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Keywords: sheep-husbandry, society and economy, wool production

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that spinning with spindle whorls and weaving on the warp-weighted loom were commonly practiced. Plant fibres, particularly linen, seem to have been the main material for the production of cloth and textiles during this period. At some point, most probably during the Early Bronze Age, animal fibres (sheep wool) began to be used in the Aegean on a wider scale. Since hardly any Neolithic and Early Bronze textiles are preserved from the Aegean, we can study textile tools made of stone, bone and clay in order to comprehend technological traditions and innovations in textile production.

One consideration in the use of spindle whorls and loom weights is the importance of raw materials and their availability.当地的(wherever the materials come from) might have had some influence on the choice of tools and techniques used in textile production. However, the focus of this paper will be on the presence and characteristics of textile tools from two sites in Greece: Aegina-Kolonna and Çeşme Bağlararasi. The fortified settlement of Aegina Kolonna in the Argo-Saronic Gulf is known as a major hub of commerce and pottery production in the first half of the second millennium BCE (Gauss and Kleebinder-Gauss 2015). Late Middle Bronze Age occupation layers in Çeşme Bağlararasi on the Urla peninsula feature an affluent harbour town with very early evidence for wine production (Şahhölü 2015). Evidence of textile tools and production from both sites comprises mainly terracotta spindle whorls, numerous centrally pierced sherd 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 operation in textile production can be reconstructed via contextual analyses. How was textile production organised spatially and socially and do the textile tools allow us to make inferences about transfer of textile technologies and about communities of practice?

References:


TH1-13 Abstract 10

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

Author: Doctoranda Ruiz de Haro, Maria Irene, Escuela 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 Castreña culture located in the northwest of the Iberian Peninsula from the Late Bronze Age to the entrance of the Romanization. These two basic concepts are innovation and technological loan. Through these conceptual tools that enable us to face a research methodology on spinning bowls, which help us answer arises why this innovation and its spread to other areas, although this study will focus on documenting spinning bowl in Castreña 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 Gopuca, 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 woolen fibres in spinning technique, while the other part imitated, known in later ages, so called gauze, made in weave 1/1. Technological analyses of the fibres proved their high quality. However, having very few examples of this type of textiles in Poland, we are not able to answer the basic question: is it an import or local production? Information collected from Europe suggest the imported material, but here another question arises – from which direction?

TH1-13 Abstract 12

Biconical ceramic spindle whorls from Maleva mogila near Vesselino 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 Vesselino in the Yambol district, Bulgaria. The site was inhabited during the Late Neolithic, Early Bronze Age and Medieval periods.

During the archaeological excavations and field surveys, 9 whole kept biconical ceramic spindle whorls were found. Most of them showed similar size and measuring. All of them belong to the third phase of the Early Bronze Age according to Bulgarian chronology (2600 – 2000 BC).

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

TH1-13 Abstract 13

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

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

Keywords: Bronze Age textile production - an internal part of everyday life of societies living on Polish territory.

Co-author(s) - Patzczak-Szóke, Judit, University of West-Hungary, Hungary

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

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

Keywords: Bronze Age, Central Europe, textile impacts

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/index.html?en) 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 woolen 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.
Comb or a vertical loom? Attempt to interpret of the decoration on the urn from Szemud, Poland

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

Keywords: Pomeranian culture, vertical loom

Presentation Preference - Poster

One of the most characteristic decorative motifs, appearing at the facial urn from Pomeranian culture, are combs. Those most schematically shown in its simplest form, a few vertical lines engraved from the horizontal line. A more realistic had singled handle, circle suspension and sometimes also the details of ornamentation. Combs images were placed on the central parts of urn, on its upper or lower part. Among the researchers any ideas of several vertical lines are interpreted as combs. In this poster I want to draw attention to another possible interpretation of ornamentations on urn of Pomeranian culture from Szemud, Poland. In literature, this image is described as “alleged” comb. It was noted that both the same image, as well as the location of the engraving is unusual for typical combs motifs. If not a comb, then what? According to the author it is a representation of the vertical loom. This interpretation is supported by exceptionally long and densely arranged engraved lines, but most important are located halfway up the three horizontal lines that bring to mind three heddle bars. These elements of the vertical loom for making a more complex patterns.

CHILD’S LIFE – BETWEEN PLAY AND WORK

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

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

Co-author(s) - Romanowicz, Paulina, Institut Archeologii i Etnologii PAN, Poznań, Poland

Keywords: Archaeology, physical anthropology, Chalkolithica

Presentation Preference - Regular session

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

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

Author - Prof. D.Sc. Mednikova, Maria, Institute of archaeology of RAS, Moscow, Russian Federation (Presenting author)

Keywords: Archaeology, physical anthropology, Chalkolithica

Presentation Preference - Oral

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

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

Author - Miliauskienė, Žydriūnė, Vilnius University, Vilnius, Lithuania (Presenting author)

Keywords: Baltic Sea region, children, enamel hypoplasia

Presentation Preference - Oral

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

The aim of the study was to analyze the prevalence of localized primary canine hypoplasia of subadult individuals in selected archeological samples, based on different chronology and subsistence: the Stone Age sample (7500-2600 BC, represented by Zvejnieki site, Latvia), the Iron Age sample (5-6th c.c., represented by Plinkaigalis, Lithuania) and medieval sample (16-18th c.c. represented by selected sites from Vilnius and Trakai, Lithuania). Medical sample was subsequently divided in three groups, based on different social status of individuals. In total, 134 individuals (336 teeth) were included in the study. All primary canines were visually scored for presence or absence of the defect. The highest prevalence of hypoplasia was found in the Stone Age sample: 38.8 % of primary canines (50 % of individuals) were affected. Children from the Iron Age sample and medieval sample had statistically lower frequency of LHPC (21.1 % and 25.4 % of teeth, respectively, p<0.05). Results also revealed differences in the prevalence of LHPC, according to social status. Children of the highest social rank had lower frequency of hypoplasia compare to children from lower social strata (12.9 % and 27.7 % of teeth with LHPC, respectively). Differences in the prevalence of LHPC most probably reflect changes in the mode of subsistence, and dietary peculiarities of different social strata, although differences in child care practices cannot be excluded.
Little Bodies at Work: Child growth, development and children’s ability to perform work

Author - Dr. Lorentz, Krisi, The Cyprus Institute, Nicosia, Cyprus (Presenting author)
Keywords: 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, understandings reached are brought to bear on the question of Anglo-Saxon children and work. As part of this endeavor, cross-sectional growth data from the immature skeletal remains from Anglo-Saxon mortuary populations of Blackgate, Newcastle-upon-Tyne, and Raunds, East Northamptonshire, are considered. The relationship between delayed growth and pathologies is explored. The growth curves of the two populations are similar, suggesting a similar level of environmental stress, assuming similarity in genetic factors influencing growth. Further, the prevalence of cribra orbitalia and porotic hyperostosis is high in the Blackgate individuals delayed in growth. Behavioural abilities are more closely related to skeletal age than chronological age, which dental age is seen to approximate. Thus, when discussing children’s capabilities, particularly in relation to work, the use of skeletal age is preferential to the use of chronological age. Delayed long bone growth may be used in making inferences about the behavioural developmental stage attained by children in mortuary populations, and further, on the kinds of work children at various growth stages may have been able to perform. The possibility of excessive physical activity should be noted alongside the conventional claims of malnutrition and disease when discussing possible environmental causes for delayed growth. Further, contemporary Western ideas should not be employed when constructing theories of childhood work in archaeological contexts.

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.

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 consist mostly of infant tombs dated between the final Bronze Age and Archaic period. Considering the high child mortality rate, the amount of child burials at necropolises is very low, and the burials of the youngest children (less than four years of age) are mostly missing. However, in Latium and Rome, many infants and fetuses have been found buried at settlement sites. Current research implies that different burial practices may be regarded to have represented different stages of human development. Children were considered to have, and thus the funerary materials offer an ideal data to explore the status of children in Pre-Roman Eturia, Latium and Rome.

This paper will examine, the birth and death, nurture, play and education as well as everyday tasks of children. Even though funerary materials primarily indicate perception of death, it is also possible to extrapolate an individual’s 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 proved that even small infants had been bestowed important status within their families, and their enculturation was already in process prior to their death.

Socialization through gender roles is also visible through examination of funerary attire.

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

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

It is commonly estimated that in Roman era around 50% of individuals born were unlikely to reach maturity. From the sources we can conclude that high infant mortality was connected with lack of attachment, lesser pollution resulting from child death, and possibly, marginal position of children in community. Here, I wish to reconsider these assumptions using a large 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, cresupina and nails, connected with mors immatura.

Children’s work in past societies. Current knowledge pertaining to physical effects of work on the immature body is examined. In particular, understandings reached are brought to bear on the question of Anglo-Saxon children and work. As part of this endeavor, cross-sectional growth data from the immature skeletal remains from Anglo-Saxon mortuary populations of Blackgate, Newcastle-upon-Tyne, and Raunds, East Northamptonshire, are considered. The relationship between delayed growth and pathologies is explored. The growth curves of the two populations are similar, suggesting a similar level of environmental stress, assuming similarity in genetic factors influencing growth. Further, the prevalence of cribra orbitalia and porotic hyperostosis is high in the Blackgate individuals delayed in growth. Behavioural abilities are more closely related to skeletal age than chronological age, which dental age is seen to approximate. Thus, when discussing children’s capabilities, particularly in relation to work, the use of skeletal age is preferential to the use of chronological age. Delayed long bone growth may be used in making inferences about the behavioural developmental stage attained by children in mortuary populations, and further, on the kinds of work children at various growth stages may have been able to perform. The possibility of excessive physical activity should be noted alongside the conventional claims of malnutrition and disease when discussing possible environmental causes for delayed growth. Further, contemporary Western ideas should not be employed when constructing theories of childhood work in archaeological contexts. 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.

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

Study cases from Latvia’s Iron Age cemeteries

Author - Vīka, Alja, SA “Arheoloģiskā izpēte” (Archaeological Research Ltd.), Aluksne, Latvia (Presenting author)
Presentation Preference - Oral

Weapony (e.g. spears, one-sided swords, axes) are occasional findings within child (usually boys') burials in the Iron Age (study cases will mostly focus on the Middle and Late Iron Age, i.e. 5th - 12th century) cemeteries in Latvia. These artefacts can be found within burials of different age of children, starting with a 1-2-years-of age. So how can we analyse and interpret these findings - were they used only as symbolic representation of gender/social status and therefore in some cases could be found already within 1-2 years old boys?’ Or axes and spears within juveniles and adolescents boys’ burials are a sign, that they were already working or learning their future occupation? And how about miniature weapons - is it possible to correlate them with a playing as a part of a learning? The main goal of this paper is to give some reflections about 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.

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 buried 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

At the Early Neolithic Flint mine of Casa Montero (Spain)

Author - Dr. Dipla, Anthi, 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 toy 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 to animals, as seen 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 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 rattles, held by either toddlers or their nurses to lull them to sleep, include pig or wolf teeth, possibly meant to ward off evil. We hear of rocking horses in literature, or come across wheeled animals, mainly horses, for babies to push or pull; once they could walk or crawl. These are either depicted on vases or form figures found in children's graves. Birds, such as geese, ducks, swans, doves, were the favourite pat of both boys and girls, sometimes buried with them, if they died. Only rarely do we find caged singing birds. Youngsters were associated mainly with dogs and only occasionally with cats, of the Abyssinian breed that was imported to Athens, as well as exotic felines, such as cheetahs. These exotic cats, or occasionally also monkeys, were reserved for the rich youth of 5th c. Athens. Children also appear to play only occasionally with cats, of the Abyssinian breed that was imported to Athens, as well as exotic felines, such as cheetahs. 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 artifacts, a cemetery and an example of child labour. The Metro excavations in the city centre have given a lot of new evidence of the presence of children in Copenhagen. Well preserved finds of toys made of organic materials were excavated from the moats of the fortification surrounding the city. These unique toys reflect play and fun, but also some of them must have been a means of preparing the children for adult lives. Along the border of the Orphan Mother Churchyard, where the buried children and tells stories about both violent deaths and sickness but also of love and affection. On the more sinister side, a tunnel was discovered under an old churchyard. The proportions and size justify that this tunnel must have been dug by children under horrible circumstances.

Keywords:

TH1-14 Abstract 10

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

Author - Dr. Dipla, Anthi, 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 animallike 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 seen 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 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 rattles, held by either toddlers or their nurses to lull them to sleep, include pig or wolf teeth, possibly meant to ward off evil. We hear of rocking horses in literature, or come across wheeled animals, mainly horses, for babies to push or pull; once they could walk or crawl. These are either depicted on vases or form figures found in children's graves. Birds, such as geese, ducks, swans, doves, were the favourite pat of both boys and girls, sometimes buried with them, if they died. Only rarely do we find caged singing birds. Youngsters were associated mainly with dogs and only occasionally with cats, of the Abyssinian breed that was imported to Athens, as well as exotic felines, such as cheetahs. These exotic cats, or occasionally also monkeys, were reserved for the rich youth of 5th c. Athens. Children also appear to play only occasionally with cats, of the Abyssinian breed that was imported to Athens, as well as exotic felines, such as cheetahs. 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 artifacts, a cemetery and an example of child labour. The Metro excavations in the city centre have given a lot of new evidence of the presence of children in Copenhagen. Well preserved finds of toys made of organic materials were excavated from the moats of the fortification surrounding the city. These unique toys reflect play and fun, but also some of them must have been a means of preparing the children for adult lives. Along the border of the Orphan Mother Churchyard, where the buried children and tells stories about both violent deaths and sickness but also of love and affection. On the more sinister side, a tunnel was discovered under an old churchyard. The proportions and size justify that this tunnel must have been dug by children under horrible circumstances.

Keywords:

TH1-14 Abstract 11

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

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

Keywords: artefacts, Roman, social identity

Presentation Preference - Oral

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

Keywords:

TH1-14 Abstract 12

The children of medieval and post medieval Copenhagen

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

Keywords: burial, childhood, children

Presentation Preference - Oral

In context with my dissertation project at the University of Bamberg I am editing findings from an early modern orphanage in Altenburg. In the early modern orphanages the children were often quite invisible in the archaeological material because of the (few) toys have disappeared or can no longer be identified; children's bones are more fragile and perish faster than those from adults from burial sites. With the aim to give nuance to the lives of children in past society, this paper will present the evidence of children living in historical Copenhagen through different unique findings of artifacts, a cemetery and an example of child labour. The Metro excavations in the city centre have given a lot of new evidence of the presence of children in Copenhagen. Well preserved finds of toys made of organic materials were excavated from the moats of the fortification surrounding the city. These unique toys reflect play and fun, but also some of them must have been a means of preparing the children for adult lives. Along the border of the Orphan Mother Churchyard, where the buried children and tells stories about both violent deaths and sickness but also of love and affection.
TH1-14 Abstract 14

Slave and servant children in Archaic and Classical Athenian art

Author: Dr. Dita, Athiti, Hellenic Open University, Athens, Greece (Presenting author)
Keywords: servant, slave
Presentation Preference - Poster

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

TH1-14 Abstract 15

Children and environmental stress in Wielbarkian societies

Author: Dr. Cmilkei-Chronowicka, Marta, University of Szczecin, Szczecin, Poland (Presenting author)
Co-author(s): Natasa, Radoj, 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.

TH1-14 Abstract 16

Glass ornaments from a girl's grave in Bytom Odrzanski

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

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

TH1-14 Abstract 17

Children in Vilnius potteries

Author: Dr. Blaževičius, Povilas, National Museum – Palace of the Grand Dukes of Lithuania, Vilnius, Lithuania (Presenting author)
Keywords: Child labor, Fingerposts, 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 dactyloscopic methods to establish whether these were children's fingerprints. The interpretation of background information helps identify the nature and scope of children's work, as well as changes possibly dependent on the child's age.

TH1-14 Abstract 18

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

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

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

CHARTING OTHERWORLDS: CEMETERIES AS CULT SITES

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

Author - Pliwowski, University of Reading, Reading, United Kingdom
Co-author(s) - Karczewski, Maciej, University of Białystok, Białystok, Poland (Presenting author)
Co-author(s) - Baranews, Rowena, Reading, United Kingdom

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

This paper will discuss the definition of cult sites in Vendel and Viking-age Scandinavia. In recent years a number of cult sites with place-names containing the element 'v' ('sacred') have been excavated. These sites have a number of features in common, such as different types of enclosures and platforms. What these sites seem to lack are burials. A survey of a number of other types of place-name indicating outdoor cult (such as theophoric names and place-names containing the element 'al' 'sacred site'), however, suggests that burials were present in these locations. In this paper, a selection of these cult sites will be examined through detailed study of archaeological features, topographic features, as well as some written sources, above all Eddic poetry. The overall aim is to investigate how these sites facilitated rituals and ceremonies in terms of movement, acoustics and location of audience and 'performers'.

Cult and Burial Sites as Arenas of Ritual and Performance

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

Keywords: Burial, Cult site, Scandinavia
Presentation Preference - Oral

This paper will discuss the definition of cult sites in Vendel and Viking-age Scandinavia. In recent years a number of cult sites with place-names containing the element 'v' ('sacred') have been excavated. These sites have a number of features in common, such as different types of enclosures and platforms. What these sites seem to lack are burials. A survey of a number of other types of place-name indicating outdoor cult (such as theophoric names and place-names containing the element 'al' 'sacred site'), however, suggests that burials were present in these locations. In this paper, a selection of these cult sites will be examined through detailed study of archaeological features, topographic features, as well as some written sources, above all Eddic poetry. The overall aim is to investigate how these sites facilitated rituals and ceremonies in terms of movement, acoustics and location of audience and 'performers'.

Necromancy in grave reopening practices in late Iron Age Scandinavia

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

Keywords: Burial, Exhumation, Magic
Presentation Preference - Oral

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

TH1-15 Abstract 06

Were cenotaphs built at Milai kapis? Analysis of barrows discovered in Wysokie site in Lithuania

Author - Mgr Rosowska, Justyna, Wilczyce, Poland (Presenting author)
Keywords: barrow, cenotaph, Vilkaudnis
Presentation Preference - Oral

In 1913 Stefan Kruczkowski excavated 22 barrows at Wysokie site (Vikiautinis, dis. Varniai) in Lithuania. According to the findings, discovered cemetery belonged to the East Lithuanian Barrow Culture and it was used during the Migration Period and the Early Middle Ages. The term Milai kapis means in Lithuanian “the graveyard of giants” and it relates to the part of the site excavated in 1913. During the exploration mentioned researcher found inter alia six barrows without any burial or artifacts inside them. Despite this, these structures revealed certain traces of funeral rites, for example layers of carbon and ash. The same layers were also discovered in the other barrows excavated at Wysokie site. The purpose of my paper is analysis of these six barrows in the context of the funeral rites. Also I will try to answer the question whether they were symbolic burials.

Cenotaphs in the East Lithuania were built throughout the whole existence of the East Lithuanian Barrow Culture, but it should be noted that their number increased, especially since the half of the 1st millennium. Among them they were often the barrows containing burial inventory without burned human remains. There have also been other variants, while in the barrow there was no evidence of both the burial and the remains of equipment. This case was noted e. g. in the cemetery near the town Alinka (Alinkos, dis. Trakai). The barrows with numbers 9, 10, and 15 did not contain any traces of graves and burial equipment.

The lack of human remains in a grave shows us the stage in the development of the funeral rite, 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 Early Lithuania at the end of the 1st and the beginning of the 2nd millennium. In this time the increasing number of people could not be buried in their indigenous places. It has happened so probably because of the disappearance of the body. Its absence caused by its death in the distant lands. This was connected with the increasing threat in these times which forced the Lithuanian warriors to head out to war and also was one of the reasons of the fall of the Roman Empire.

TH1-15 Abstract 07

Discovering Otherworld: Investigation of the Bajorai Cemetery (SE Lithuania)

Author - Prof. Valdievičius, Vyķintas, Klaipėda University, Klaipėda, Lithuania (Presenting author)
Keywords: burial site, Pre-Christian religion and mythology, Sacred site
Presentation Preference - Oral

In 2009 two wealthy female inhumations were excavated in the conversion period (12th–13th century) cemetery at Kukruse, NE-Estonia. Both women were exceptionally richly furnished and belonged to the nobility of this society. In addition to rich grave goods both inhumations contained egg shells, although these were recovered from clearly different contexts. In one burial the egg was laid between femurs, on top of her dress and ornaments. It was painted red and clearly displayed with apparent symbolic connotations. The egg from the second inhumation was found at the foot of the woman, near to a ceramic vessel. Both eggs have been identified as chicken eggs with ZooMS and microscopic analysis.

The unusually different finding circumstances of eggs in the two female burials at Kukruse raise several questions: What is the meaning of an egg in burial rituals for this conversion period cemetery? Why was the same object curated so differently and how are we to interpret this situation? Can we talk about pagan or Christian connotations, perhaps even simultaneously? What do these eggs find tell us about the religious identity of this society?

TH1-15 Abstract 08

Sacredness of Space and the Afterlife: The Topography of Medieval Lithuanian Cremation Cemeteries

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

In many cultures burial rites and the relationship with death and the afterlife are fundamental issues of existence. Death is conceived as a passage from this world to the afterlife, therefore burial is perceived as a direct reflection of connection between the living and the dead. Contrary to the established views, burial rites speak not only about the departed to the Paradise, but also about the living, their ideology and the concept of the afterlife. Nowadays researchers perform comprehensive interdisciplinary studies, and burial rites are used for the reconstruction of the social structure and communication, religion and the concept of the afterlife of past societies.

Furthermore, they allow analysing burial sites and their environment that is of less importance. This paper examines the burial topography and its relationship with the surrounding environment and the landscape. The relationship among cemeteries, residential and sacred places, defensive structures and water bodies is investigated. The paper aims to reveal what role sacredness of burial places, the concept of the afterlife, and afterlife images played in the topography of burials.

The early Medieval Lithuanian cremation cemeteries are the case in this study. In the middle of the 13th century, the Grand Duchy of Lithuania was formed as a Christian state, however, Christianity was abandoned, and until the final conversion to Christianity in 1387, Lithuania existed as the only Medieval pagan state in all Christian Europe. In the 13th and 14th centuries, due to the state reform of Paganism in Lithuania, burying cremated deceased in burial grounds became a uniform burial practice.

Certain landscapes define burial places, though the topography of early Medieval Lithuanian cremation cemeteries is based on mythical images of the afterlife, and special sacred and mythological values conditioned the localization of burial sites.

TH1-15 Abstract 09

Change of the Lithuanian burial rite in the 14th – 16th century: Archaeological and Written data

Author - Viliūnas, Mykolas, General Jonas Žemaitis Military Academy of Lithuania, Vilnius, Lithuania
Co-author(s) - Didziulis, Ričardas, Vilnius University, Vilnius, Lithuania (Presenting author)
Keywords: burial, cemeteries, medieval archeology
Presentation Preference - Oral

Lithuania was the last European country converted to Christianity. In its ethnic lands the old heathen faith thrived till the end of the 14th century (and in Samogitia till the early 15th century). Though Christianity featured some signs of spreading to Lithuania since the occurrence of the Lithuanian state (the 1st half of the 13th century), conversions were far from massive. Christian communities (both Eastern Orthodox and Catholic) and their churches and cemeteries existed in Vilnius during the heathen times.

After Lithuania was baptised in 1387 and Samogitia – in 1413, Christianity began to spread causing changes in different spheres of life including burial rites. In the late 14th – early 15th century inhabitants of the present territory of Lithuania practiced inhumation but cremation continued till the 2nd quarter of the 15th century alongside with that. In case of inhumation, the dead were buried both in coffins and without them. Their orientation varied but the tradition of orienting heads westwards started to prevail. This is especially obvious in the burial sites located in the areas where the process of Christianisation was more advanced; burial goods in such graves also tend to be fewer.

Nevertheless, most of the burials dating to the late 14th – early 16th century still contain burial goods. In most of the cemeteries surveyed burial goods were present in more than a half of the graves; their numbers varied from one to several dozen of items. Knives were the most popular; they were found in the burials of males, females, and children. Female burials distinguished with the numbers of jewellery items, whereas in the male burials only rings were a common jewellery piece. Besides that, female burials often contained spindles and awls, whereas male burials included weapons (and sometimes also spurs and stirrups), frost stakes, razors, and belt buckles. Other burial items, such like pouches, purses, coins, chain inks, pots, poultry bones, and amulets (laws of wild beasts in metal sculptures), were found in burials of both genders.
Though, after Lithuania had been baptised, Christianity began to spread and change burial rites, its influence varied in different ethnic regions of Lithuania. It had a greater effect in the political centres of the state, in the cities, and in the vicinities of castles and churches. Meanwhile, in the peripheral old burial customs which were hardly in line with Christianity thrived during the entire period discussed. The faith featured syncretism and entanglement of Christian and ancient heathen traditions which was reflected by the burial rites, as well.

The written sources of the period discussed also present some information on the old burial customs still being practiced in the region revealing how complicated was the way of Christianity into the heathen country.

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

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

Archaeology shows that material remains found in the sacred space of cemetery reflect cultural, religious and social diversity. On that basis we can discuss about multi-faceted relations between groups of humans, their habits and behaviours. Nevertheless, it is generally known that sacral objects are only final products of funeral ceremony which is both a rite of passage regarding the dead (van Gennep 1909) and some kind of identity performance in order to consolidate community (Tumer 1960).

On that account, of course, the place as special space of transregression 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 (Domański 1971), was the frontier zone of different archaeological units (the Przeworsk and Wielbark Cultures, as well as the Elbe cultural circle). Relics from there, for that reason, combine the various features of neighbouring cultures over the time. In facts, burial mounds dated from the middle and later Roman period (II–IV c. AD) are difficult to archaeological interpretation. For instance, some barrows with remains in cremation site (Homo, Kr. Sprees Neisse) are associated with the Przeworsk Culture because of the warrior equipment inside (Janiczak 1990), while others surrounded by stone circle (Luboszyce, Krosno Odrzańskie county) – with the 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 (Hrincová 2010) seems to be the key to reconstruct and study these ritual actions building new order and establishing social roles on the ground of symbolic ones (Turner 1982). Behavioural like that, because of peculiar cultural diversification in the borderline landscape, may have been resulted in creation of new patterns, including syncretic forms of funeral rites (Domański 2010) and, perhaps, mythological narratives.

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

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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 bones remains are relatively frequent in graves of people of both sexes, who belong to different age classes. Among them are represented the bones of mammals, both domesticated and wild.

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

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

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

Ulów is a small village in Lublin Voivodeship (SE Poland) situated in the region of Middle Roztocze. The complex of archaeological sites in the woods of vicinity of Ulów 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 separated from each other by a deep valley of rivulet, now, intermittent. At the same time, it is a border between two zones – sacrum and profanum. On site 3, except the cemetery dated to the 4th century A.D. – to the middle of the 5th century A.D. evidences of much older settlement were found. They are associated with the Late Palaeolithic, the Mesolithic, the Neolithic (the Lublin-Volhynia, Trendynek, Beaker and Corded Ware Cultures), as well as the Bronze Age, the early Iron Age (the Forostovian and Lusatian Cultures) and the Middle Ages. Three barrows of the Corded Ware Culture were also discovered and explored. They were closely connected with the arrangement of a cemetery from the Late Roman and early Migration Periods. Many aspects of the burial rites practiced at Ulów in all phases of the settlement is not an analogy in Polish lands. Therefore, the main question is why the people of so many cultures chose this place. Whether the settlement was associated with convenient geological and geomorphologic conditions or with cultural tradition, or whether it was the random choice?
TH1-15 Abstract 15

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

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Keywords: cemeteries as social understanding, early middle age, faith in funerary context

Presentation Preference - Oral

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

We have a lot of information of this kind of social manifestation of groups, about the cemeteries. Did those information helps us to understand those fighting? To understand the religion of the different groups the lived on the Lower Danube? Did the differences between the way a grave was construct with all its architecture and goods can be viewed as arguments for seeing religious differences between groups or persons? Did the cremation and 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 mainly the person and not the group, taking into consideration small, but we think important, differences in the funerary expression of faith of each grave/person.

TH1-15 Abstract 16

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

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

Keywords: Bulgarian, deviant burials, medieval period

Presentation Preference - Oral

What is deviant burial and why it occurs are questions that have been part of archaeological thinking longer than we may assume. Nevertheless, the interest of such special cases where the deceased received noticeable different treatment is just now forming systematic approach towards them. Recently the theme of deviant burials was reappraised in European archaeology, sometimes creating very heated debate over it. Simultaneously, the increasing finds 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 in the territory of Bulgaria based on the archaeological findings and records and adopting long-term and theoretically aware perspective. It is based on pilot study undertaken to assess the potential for wider research on regional scale in Southeastern Europe.

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

TH1-15 Abstract 17

Aegean burials as liminal performances

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Keywords: Aegean, burial, Performance

Presentation Preference - Oral

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

TH1-15 Abstract 18

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

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Keywords: Identity, Mycenaean elites, multiple burials

Presentation Preference - Oral

The presentation will provide a summary of the mortuary customs studies for MH I – LH II Argolis. Multiple graves were only 14% of the excavated number from the sites of Asine, Argos, Dendra, Lerna, Mycena, Tyrins and Prosymna. The analysis focused on the formal nature of specified graves. Following preferences were provided with the MH III period (beginning of Mycenaean culture). The high growth of multiple burials was visible, the traditional burial areas were used and there were no special cemeteries for the local elites of society. Some of the objects were highlighted within the cemeteries (perimeter walls, stone 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 to the same grave to interpret acts of proving or highlighting the relationships between successive deceased and between deceased and living. It is visible that the elites tried to differentiate between each other by using of special tomb markers (walls, stone steles and tumuli) or graves offerings, which included numerous precious objects (imported or made in local workshops). This explanations will be connected especially with the presentation of cases from Argos (tumuli) and Mycenae (grave circles). The Argolis cemeteries can be interpreted as a theatre of cultural changes. They indicate a desire to accent a strong significance of the blood ties role into a community and the role of the family as the basic social unit. They also indicate a manner to separate and designate for some groups of society, the aristocratic creation of themselves. They emphasized the individual identity and tried to define their origins and place as members of a larger group of society.

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

TH1-15 Abstract 19

The Symbolic Meaning of Grave Goods

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Keywords: Grave goods, Interdisciplinary method, Symbolic meaning

Presentation Preference - Oral

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

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

Also 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, ethnology, history and Lithuanian linguistics. To illustrate, five different artifacts have been chosen: needles, rings, sleigh bells, axes and swords.
LITHIC RAW MATERIALS IN PREHISTORY: SOURCING, NETWORK DISTRIBUTION AND USE

TH1-16 Abstract 01

Obdissian 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. 6400 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 in Malta, Sicily and other islands south of Sicily, and to some extent in Tunisia, Sicily, and the island of Ustica to the north. Small amounts of obsidian from sources on Sardinia and Palmaorca made their way to southern Italy. Important pXRF analysis can distinguish between these subsources, including Gabellotto and Carneto Dentro on Lipari, and Balata dei Turchi and Lago di Venere on Pantelleria. Consideration of these variables is critical in the understanding of obsidian access and selection, distribution, and use, and may be integrated with our knowledge of the availability and transportation of other material culture items (e.g. flint, greenstone, ceramics, animals, secondary products). The large number of artefacts from many Neolithic and Bronze Age archaeological sites now tested provides the opportunity to assess socioeconomic changes over time, and variation based on location and lithic production methods, typology, and usage. Obsidian distribution patterns also provide better understanding of open water transport capabilities and directions, with Pantelleria 100 km from southeast Sicily, Lipari 30 km from the northeast coast of Sicily, and many obsidian artefacts transported several hundred km further along the coasts of the Tyrrhenian, Ionian, and Adriatic Seas.

TH1-16 Abstract 02

Provenancing Archaeological Obsidian from Bulgaria

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Keywords: Bulgaria, obsidian, provenancing

Presentation Preference - Oral

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

TH1-16 Abstract 03

Sites, Sources and Flint Routes

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Keywords: Bartonian flint, sources, procurement, control, Neolithic, Michelsberg, routes, access

Presentation Preference - Oral

During the Middle Neolithic in the Asine and Vele valleis, the numerous sites dating to the Metchilberg Culture mostly exploit Upper Bartonian Tertiary flint (b7b). This was used predominantly for producing flakes, although long blades and polished axes were also made. Other Tertiary silicifications are used, as well as varying amounts of Secondary flint. Survey was recently undertaken to record all Upper Bartonian outcrops located between the Vele valley and the well-known source at Romigny Lhery. The aim here was to address a number of issues. Is there a source of Bartonian flint closer than Romigny Lhery with sufficiently large and good quality nodules for production of long blades? Are there any mine shafts of the kind known in other Michelsberg areas? Are ditched enclosures involved here in controlling access to flint sources, as is the case elsewhere in Michelsberg contexts, for example at Jobilines, in the central Paris Basin, or Spenne in Belgium? Using the results obtained, we tested various models of routes between sites and sources, based on least cost analysis algorithms for return trips. This enabled us not only to identify the possible routes used, but also to calculate more precise distances involved. Different hypotheses were tested, including direct or indirect access, with or without an enclosure controlling either access or distribution. To conclude, the preliminary results are compared with evidence elsewhere of Michelsberg lithic procurement territories.

TH1-16 Abstract 04

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

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

Keywords: Final Paleolithic, 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. Elynyas, Margyninas, Štikas and Būdai. Several others have been only preliminarily identified. However, the small hunters’ communities in northern Lithuania, which territories lack good-quality flint raw material, were forced to import a high-quality raw material from southern regions of the country. Such cooperation between the southern and northern local communities continued until the end of the tanged point manufacturing tradition (Middle Mesolithic). Later exchange contacts are interrupted and the northern part of the country’s population was forced to settle for poorer local flint raw material, or even choose a different raw material for their tool production –
TH1-16 Abstract 06
Differences in the raw material preferences in Polgár-Csoszhalom, northeast Hungary

Author - Faragó, Norbert, Ethnol 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 as well. 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 scenes of life (familial and profane) met and mixed with each other. Although these categories were more plastic and permeable for the prehistoric people, it is worth trying to investigate separately the various 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, no matter which is made of. In some cases, the raw material choice and the technology used may have been forced by practical reasons, without any other motives behind it.

TH1-16 Abstract 07
Lithic procurement as a social phenomenon in the Stone and Bronze Age in southern Norway

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

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

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

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

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

TH1-16 Abstract 09
Production, distribution and use of Final Neolithic flint axes in western Poland

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Keywords: flint axes, Poland, Final Neolithic
Presentation Preference - Oral

The paper presents several 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 southern Poland and “Scandinavian flint”. Based on these results, we created models of chain operators relating to the production and use of the flint axes made from different types of raw material. Additionally, we investigated the character of the distribution route – whether craftsmen manufactured the lithic axes only near to the prehistoric flint mines and their goods were imported to the other territories, or they journeyed as specialists who distributed and repaired the flint axes.
TH1-16 Abstract 10
Banded flint from Central Poland – new discoveries, new questions

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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 “Krzemiów”. Intensive research on prehistoric flint exploitation in this area started in the first quarter of the twentieth century and was summarized in the International Flint Symposium in 1978. In recent years, one has returned to the research of flint mining using new technical possibilities. Geological survey showed the location of many kilometres of outcrops of banded flint in the southeast margin of the Świętokrzyskie Mountains. However, there is no evidence of its use in prehistoric times. Survey also located sporadic occurrences of secondary accumulations of banded flint in glacial deposits in southern Poland (near Cracow). Airborne Laser Scanning (ALS) make it possible to analyze in detail the entire course of banded flint outcrops from the NE margin of the Świętokrzyskie Mountains. This resulted in the discovery of yet another prehistoric point of exploitation. Also allowed to create detailed maps of all known prehistoric mining sites. These plans revealed a previously unknown method of exploitation and also changed our ideas about the size and state of preservation of most sites. Verification surface survey of prehistoric banded flint mines resulted in the discovery of materials that show in new light the problem of access to resources and how they were used in the final Neolithic and Bronze Age.

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

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Keywords: Dynastic Period, Egypt, flint, mining

Presentation Preference - Poster

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 wadis, such as in Wadi el-Atshan, Wadi Sojop, Ward Um El Habab, in Western Thebaid. These places attracted the attention of researchers since the end of the 19th century. However, none of them has been comprehensively examined. Only recently research has been resumed. In the area of the wadis there are still places of extraction of raw material, lasting its quality, knapping workshops and some temporary workers' shelters visible at the surface. On the other hand, there are not many traces of knapping workshops on the settlement area in the Dynastic Period. However, a wide spectrum of everyday objects made of flint is known from the territory of Egypt. This paper is concerned with the study of flint assemblages from a number of Egyptian archaeological sites of the Dynastic Period. The observations are based on published material from mines and settlements, on museum collections and excavations. The attempt to compare the mined flint and flint from secondary placer deposits products will be carried out. The results of the analysis will provide an introduction to the topic of flint knapping specialization and indicate the importance of this raw material in Dynastic Egypt.

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

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Keywords: Early Neolithic, lithic technology, obsidian

Presentation Preference - Poster

This paper will present the result of a new study of the site of Kašov-Čepegov I in eastern Slovakia. Excavations at Kašov were led by Ladislav Banes during the mid-1980s. Excavations revealed one pit with hundreds of obsidian waste concentrations and associated decorated pottery sherds belonging to the Bukk Culture (Banes 1991). The exploitation and trade of obsidian is usually linked to the Bukk Culture. Previous analyses of chipped stone industries from various sites have shown that obsidian played a major role especially with the existence of so-called specialized on-site workshops where blocks were preliminarily worked and partially exploited to produce blades. The detailed technological study of the concentrations shows that the knapping action of obsidian debitage at Kašov is quite an original Neolithic obsidian debitage in Eastern Slovakia. The production is not very regular and shows « macro blade debitage » as well as smaller blades. Evidence of flint-knapping apprenticeship has also been detected. Finally, we demonstrate that Kašov can rather be interpreted as a domestic assemblage. The obsidian production does not offer much from other blade productions made on jasper/quartzite or rhyolite described on other Bükk sites. We believe that the blade debitage of the pit at Kašov belongs to a laminar tradition that appeared in the Early Phase of the ELC in eastern Slovakia.

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

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Keywords: Lake Onega, Mesolithic, Fennoscandia, Russia, lidite, shungite, lithic provenience analysis

Presentation Preference - Poster

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

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

Author - Wiera, Dagmara H., Institute of Archaeology and Ethnology Polish Academy of Science, Warsaw, Poland (Presenting author)

Keywords: Danubian communities, distribution of siliceous rock, East-Central Europe

Presentation Preference - Poster

The Polish Lowland is poor in deposits of good quality raw materials for the manufacture of chipped stone artefacts. Lineanbandkeramik communities in Chelmo Land, distributed good quality siliceous rock. Some of them were distributed over dozens of kilometres. On the sites “imported” flints were predominant. Among the most important are the “chocolates” flint from the northeast margin of the Świętokrzyskie (Holy Cross) Mountains, and Jurassic-Cracow flint from the Polish Jura, near Krakow. From 14 inventories from Chelmo Land were analyzed more than 1400 flint artefacts. The presence of distributed materials is from 3.5% to 85%. In the oldest phase Jurassic-Cracow flint predominates, while in the younger stages “chocolate” flint is dominant. The latter is present in several varieties, which indicates that it may have been imported from different outcrops. This suggests that the links with the south were not limited to one area. The presence or absence of these two types of flint has an influence on our knowledge about the meaning of the sources, the use and existence of flint mining and the reconstruction of exchange routes. Unfortunately, mistakes are sometimes made when distinguishing the various flints. In particular “chocolate” flint is mistaken for Jurassic-Cracow flint. To better distinguish those two types of flint we made several analyses. One method we used was Electron Probe Micro Analysis (EPMA). We analyzed several geological samples as well as artefacts from four prehistoric sites from Chelmo Land. In this paper we present the results of the analyses and their potential implications for our knowledge of Lineanbandkeramik communities’ exchange and distribution of siliceous rock. Acknowledgements: The investigations were funded by the National Science Centre in Poland (PRELIMINUM 2, UMO-2011/03/B/H35/03978).
This study is an analysis of local flint pebbles reduction strategies in the settlement of Sārnate. The site is located approximately 2.5 km from the present Baltic Sea shore on a former lakeshore on the Kurzeme Peninsula (western Latvia) and is dated to the Neolithic of the East Baltic. It was excavated between 1938 and 1959 by Eduards Šturms and Lūcija Vankina. During excavations in the site were discovered many separate dwellings. Therefore, in this site it is possible to analyse knapping strategies and techniques that were used in each dwelling and determine similarities and differences between them. According to the data from proximal debitage analysis it is possible to divide dwellings into two major groups on the basis of the way flakes were produced from local flint pebbles. The first group consists of dwellings where for flake removal from a pebble the cortical surface of the pebble was used as a striking platform. In this group flakes are produced from impact along the cortical edge of the pebble. Using this strategy the dwelling inhabitants made quite thick and massive monopolar flakes that mostly belong to the secondary flake group (grouped by the Triple Cortex Typology). The same pebble reduction strategy was used for poorest quality imported flint as well. While good and excellent quality imported flint pebbles and nodules were transformed into platform cores or used as irregular multidirectional cores. In some cases, in this dwelling group local flint pebbles have been divided into massive debitage 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 flake flakes from local flint are more like flakes from imported flint - thinner and mostly with a flat striking platform. If the results of this study are compared with the study of pottery in the Sārnate settlement by Valdis Bērziņš, then the first dwelling group where raw material quality affected the pebble reduction strategy are mostly those where were used local pottery tradition: dwellings with Early Sārnate Ware and dwellings with Late Sārnate Ware, while in dwellings where raw material quality did not affect pebble reduction strategy Typical Comb Ware pottery was mostly used.

TH1-16 Abstract 15
Local flint pebbles reduction strategies in the settlement of Sārnate
Author - Katrina, Marc, University of Latvia, Riga, Latvia (Presenting author)
Keywords: Latvia, Neolithic, pebble reduction strategies
Presentation Preference - Poster

TH1-16 Abstract 16
Localisation of Sources of Obsidian Registered in Bohemian Prehistory (Czech Republic)
Author - Burgert, Pavel, Institute of Archaeology of the CAS, Prague, Czech Republic (Presenting author);
Co-author - Prichystal, Antonín, Department of Geological Sciences, Masaryk University, Faculty of Science, Brno, Czech Republic;
Co-author - Proksa, Lubomír, Department of Chemistry, Masaryk University, Faculty of Science, Brno, Czech Republic;
Co-author - Potrik, 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: LBC: 5500–5000 cal. BC; Brok Pottery Culture: BK: 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 (Brheň – Čajkov). However, the raw material of the two remaining samples dated to the same period comes from Hungarian sources, Carpathian 2b (Obluděnice – Olaszliszka). It is therefore evident that in the Neolithic period, obsidian from the Český kras were a significant source of raw materials 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 cortex, 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 - Keneder-Gubala, Katarzyna, Institute of Archaeology and Ethnology Polish Academy of Science, Warsaw, Poland (Presenting author)

Oronsó village and region is located in the northeast part of the chocolate flint deposits (one of the most valuable raw materials of Poland), on the northeast Masovian margin of the Holy Cross Mountains and Radom Plain, in the Kozara district, Masovian voivodship. The history of researches in this area began in the early XX century, when S. Krucowski discovered numerous sites connected with the exploitation of local raw materials that are dated from Late Palaeolithic to Early Bronze Age. In this research, the use of underground, mining methods there was also confirmed, and dated as early as the Late Palaeolithic and probably Early Bronze Age. All of the sites known from archival research (conducted also by other researchers until recently) have been collected in one database. This contains several hundred sites concentrated in the northwest part of the chocolate flint outcrops (about 60 km²), connected with the Stone Age settlement. The problem was that the 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 knowledge 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 - Szalay, Kata, Előtvös Loránd University, Budapest, Hungary (Presenting author)
Keywords: chipped stone tools, Late Neolithic, Lengyel culture
Presentation Preference - Poster

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

TH1-16 Abstract 19
The Flint Inventory of the Neolithic and Bronze Age from the sites at Żylicy (western Belarus)
Author - Velant-Scherbach, Sviatlana, Institute of History NAS of Belarus, Minsk, Republic of Belarus (Presenting author)
Keywords: flint industry, Neolithic, Przyplats-Neman culture
Presentation Preference - Poster
There are four multicultural sites known near Zvětice village (Moravia region). Open-air settlements dating from the Final Paleolithic until the late Middle Ages are located on the upper and lower terraces of the left bank of the Morava River. Five of them were excavated between 1999 and 2011. The first inventories from sites 3 and 4 comprise mainly debitage products, which makes it difficult to determine their cultural attribution. Materials from sites 1, 2, 5 and 6 are more characteristic and allow the flint industry to be ascribed to the Neolithic and Bronze Age. Local Creteceous flint was used as a raw material. The tool set of the complexes under discussion is typical for the Neolithic and Bronze Age of the Upper Neman region: triangular arrowheads, end-scrapers, borers, knives and knife-like blades, combination tools, burins, splintered pieces, notched tools, axes and adzes. More than 50% of the flint artefacts are waste products: flakes, blades and technical chips. Typological and comparative analyses permit cultural and chronological interpretation of the material as well as highlighting the main features of the local flint industry of the Neolithic and Bronze Age. Therefore, flint materials testify to the presence of the population of the following cultural traditions on the settlements under discussion: Přerovsk-Neman and Neman cultures, the Circle of the Corded Ware Culture, and the Trzaciec Culture.}

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**TH1-16 Abstract 20**

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

**Author:** Zarka, Ligia, University of Latvia, Riga, Latvia (Presenting author)

**Co-author:** Kairiss, Marcis, University of Latvia, Riga, Latvia

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

**Presentation Preference:** Poster

Traditionally, tools are regarded as indicative for characterization of ancient cultures and many of the prehistoric cultures have been distinguished mainly based on the characteristic shapes of tools and applied processing technologies. The relatively high level of preservation of stone artefacts determines their special value in prehistoric studies, especially regarding the most ancient periods. Studies to date confirm the importance of morphology analysis not only for typology and classification, but also for tracing similarities, differences and transitions of shape characteristics comparing archaeological evidences in temporal and spatial context. Moreover, morphology analysis of artefacts reflects also ancient men knowledge, skills and cognition. Morphology analysis quantitatively can be carried out using morphometric methods. Traditional morphometric methods used in archaeology mainly correspond to linear measurements, however, such data do not characterize shape, but refer just to some shape features (e.g., size, certain proportions), thus, such data are not complete. Important contribution to improvement of morphometric methods has been developed by development of various geometric morphometric methods. These methods are not widely used in archaeology, and studies carried out so far mainly have demonstrated the benefits of certain applications that have been borrowed from other research fields where such methods have been adapted. In this respect, the number of studies conducted do not allow to evaluate the suitability of applied methods and point to fact that still there has not been developed an approach that would allow not only to characterize distinguished tools or tool types, mostly in narrow regional context often applied in case studies, but would be also used as a method for obtaining data for wider comparisons and determination of standard characteristics of artefact shapes. The mentioned indicates that it is necessary to develop a comprehensive methodology for the study 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 the varying applicability of spatial analysis in considering social interpretations of buildings particularly for interdisciplinary studies of buildings and societies. This is seen through the Norman and English case studies of the paper, in seeking to discern aspects of the relationships between these intertwined societies of the central middle ages. Overall the paper will demonstrate that the utilization of spatial analysis can be used not only to deepen an understanding of society and their buildings, such as those in Calvados in a period of cultural exchange, domination, and altering views of authority, but also that the use of this method can further illuminate aspects of space and society by using a different lens to view the Norman worlds of the central middle ages.

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**TH1-17 Abstract 02**

**Living on the Edge: Cheshire Castles in Context**

**Author:** Dr. Swallow, Rachel, Altrincham, United Kingdom (Presenting author)

**Keywords:** Castles, Cheshire, Frontier

**Presentation Preference:** Oral

Landscape studies have seen considerable recent debate, resulting in the development of an interdisciplinary research environment. This re-imagining of castle studies by promoting new approaches and interpretations. Through 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 few archaeological excavations and survey have been undertaken on the county's castles. Interdisciplinary landscape research for Cheshire's castles therefore distinguishes from previous studies, 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 ears of Chester, provided the context for the multifarious purposes and forms of Cheshire's castles. Raising 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 changes within the British Isles. The county was clearly and intrinsically linked with the overall political, social and economic dynamics of not only England, but also Wales and the Irish Sea Province. This paper therefore questions traditional documentary and secondary source narratives, which have taken on diaseastic Welsh versus English cultural identities based on false or irrelevant, modern, and thus constructive, historic time periods and temporal boundaries.

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**TH1-17 Abstract 03**

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

**Author:** Dr. Istrate, Daniela Veronica, Brav, Romania (Presenting author)

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

**Presentation Preference: Oral**

I will explore the region of central-western Romania, commonly known as Transylvania, in the first centuries of the second millennium. This region was part of the kingdom of Hungary, but was in fact located on a confessional and ethnic frontier, between Orthodox and Catholic Europe, and in an area of bewilderment ethnic and linguistic variety—both factors responsible for giving the region its distinct character of a borderland. One of its most significant forms of expression of that character was religion: pagans, orthodox and catholicosettled this area and found specific ways of living and practicing their beliefs. Archaeology is indispensable for the understanding of the early period (10th-13th c.), for which there are very few, if any, written sources. Although the study of built structures is a relative new sub discipline in the field of medieval archaeology, in the last decades has brought important contributions to the better understanding of the history of this area.

In my paper I will provide an accurate overview of this topic and focus on the ruined church uncovered recently in Alba Iulia fortress – the oldest medieval church ever found north of the Lower Danube. The ruins were unexpectedly uncovered during structural works, in a very complicated stratigraphic context, consequence of the use of the area during the last two thousand years. Prehistoric, Roman, post-Roman, and medieval periods can be identified in the church, when was in use for about a hundred years, until it was in turn pulled down during the second half of the 11th century, when the first Roman-Catholic Cathedral was being built. Subsequently, the ruins were disturbed and partly destroyed by the 11th-13th centuries’ medieval gray payable and later by numerous medieval and modern intrusions. The analysis of this discovery (archaeological context, architectural features, building materials) offers a unique opportunity to explore the history of the Carpathian Basin around the year 1000.

**TH1-17 Abstract 04**

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

**Author:** M.A. Viljnic, Josip, Croatian Conservation Institute, Svetvinčenat, Croatia (Presenting author)

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

**Presentation Preference: Oral**

The medieval fort Peträpiola 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 walled structure allowed us to distinguish different developmental phases. The examination of these phases shows us different reconstructions of the development of this structure. Moreover, the analysis of the pottery and architectural features has allowed us to distinguish the development of the fort. In order to reconstruct the development of the fort and its influence on the local society, we will present some preliminary results of the researches.

**TH1-17 Abstract 05**

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

**Author:** Master Gullbrandsson, Robin, Västgötländs 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 diocese of Lund, Skara, Skåne, Stånga and Västervåker 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 asumed that the Swedish material may consist of some hundred Romanesque roof structures and probably almost a hundred Gothic structures. Until the conduct of above mentioned surveys our knowledge of the number of preserved objects was scarce and more or less random. In the present study it seems that the early-medieval roof structures of churches in the landscapes of Götaälv 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 canted struts (often meeting the rafters and tie beam) and tenon seems to belong to the oldest ones, though these are only partly preserved in a few geographically concentrated churches. The most common type of roof trusses has crosstruts, 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 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.

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**TH1-17 Abstract 06**

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

**Author:** Dr. Nastasi, Ariana, University of 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 Ori-Latium 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 presented. Today this church presents a Romanesque architectural style, as designed and developed by Bishop Peter from Salerno, in the eleventh century. However, its history dates back at least two centuries earlier: a comparison between archaeological data and written sources points to the hypothesis that this first cathedral was built in the ninth century by Bishop Rumanus. In the same spot where today rests the Romanesque church. It is thus possible to reconstruct the development of the cathedral over the centuries from the Early to the Late Middle Ages. The church of St. Mary can be situated within the historical evolution of the territory at a time when the Carolingian kings recognized and guaranteed to the Church of Rome its spiritual and political power by granting it large portions of land to rule. Evidence of this wide administration is found in the exceptional epigraphic record that is today held at the Diocesan Museum of Anagni. The record consists of a corpus of inscriptions all of which are ascribable to the same charta latae, namely a documentary epigraph, a copy of a rotary deed which lists charters and landed properties attributed to the cathedral. The inscriptions, characterized by strong stylistic and paleographic 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 nave with a clear symbolic intent of reconnecting with a historical moment of supremacy of the Roman Church in which bishops, as local representatives, were the pinnacle of territorial power.

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**TH1-17 Abstract 07**

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

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

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

**Presentation Preference: Oral**

In my paper I will provide an accurate overview of this topic and focus on the ruined church uncovered recently in Alba Iulia fortress – the oldest medieval church ever found north of the Lower Danube. The ruins were unexpectedly uncovered during structural works, in a very complicated stratigraphic context, consequence of the use of the area during the last two thousand years. Prehistoric, Roman, post-Roman, and medieval periods can be identified in the church, when was in use for about a hundred years, until it was in turn pulled down during the second half of the 11th century, when the first Roman-Catholic Cathedral was being built. Subsequently, the ruins were disturbed and partly destroyed by the 11th-13th centuries’ medieval gray payable and later by numerous medieval and modern intrusions. The analysis of this discovery (archaeological context, architectural features, building materials) offers a unique opportunity to explore the history of the Carpathian Basin around the year 1000.

The Medieval hospitals of England: a complex issue...
This paper will outline the importance of examining the full range of buildings found at the medieval hospitals of England, and how they interact as part of a complex, for understanding how these sites functioned, both physically and religiously. The medieval hospital first appeared in England in the 1080s, with two founded by Archbishop Lanfranc of Canterbury, and they lasted until 1547 when Edward VI passed the Charters Act, abolishing the practice of prayers for the souls of the dead. In the four and a half centuries between these dates, the medieval hospitals were utilised by the charitable to cater to a range of people deemed worthy of Christian charity. Whilst poverty was an overwhelming concern, this often manifested in care for sufferers of leprosy or in sheltering poor wayfarers and pilgrims, and often attention has 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, 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 overwhelmingly religious nature of these institutions, the underlying presence of a structure to their space has never truly been investigated.

New research has suggested that when looking at these sites as a whole a hierarchy of space can be seen that implies that at some level there was a unified conception of how these sites should look and function, with areas to the south and east being ideologically higher than the north and west. Utilising case studies from excavated hospitals across England these structured spaces will be explored, from the famous St Mary Spital in London, to St Bartholomew's at Bristol, to small pilgrim cells such as St Mary Magdalen at Patney, and suggest that the layout of English medieval hospitals was likely based upon religious ideology, social standing, and attitudes to gender. This paper will also highlight some of the implications this ordering of space may have had for those residing in the hospital complex, both staff and inmates. Ultimately the nature of the structured space is not surprising, given the mixed nature of these communities, with men and women, religious and secular, rich and poor, living together. What is surprising is the apparent ubiquity of this structuring across the country and throughout the late medieval period.

TH1-17 Abstract 08
Saint Gunther and the Central Bavarian Forest - Was his monastery the beginning of settlement?
Author: Ranzinger, Mario, Heidelberg, Germany (Presenting author)
Keywords: Geoaarchaeology, Monastery, Settlement
Presentation Preference - Oral

This question is the central part of a beginning master’s thesis dealing with geoaarchaeological methods and how they can help us interpret archaeological evidence regarding settlement, landscape and the human impact on landscape and nature. The monastery of Rinchnach, located in the Bavarian Forest, is said to have been the first settlement in this region. Apparently, St Gunther, founder of the monastery, started the clearing of the forest and the building itself back in 1011 AD. Now this historical date is to be analysed with various methods. The research on geoaarchaeological prospect 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 geoaarchaeological, geographical, geological and historical sources can give an insight into landscape, agriculture, the origin of building materials and perhaps the general human impact on flora, fauna and landscape itself. Furthermore with analyses like radiocarbon dating or archaeobotanical researches, a chronological overview can be given. However, 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.

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

TH1-17 Abstract 09
Medieval Oslo’s Masonry Buildings Revisited
Author: 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-constrcted town, built around the high-status masonry complexes belonging to the bishop, the king, and the monastic orders. This paper will utilise both archaeological and written sources and address Oslo’s known secular masonry buildings, their chronology, context, use, and owners. A central question is how the masonry buildings functioned as social markers in a town where the secular architecture mainly consisted of timber constructions. Oslo might have a greater number of medieval masonry buildings than hitherto believed. This possibly impacts earlier interpretations of the town’s social topography. A central aspect considered in this paper is how the secular masonry architecture reflects the builders’ status, motives, and activities.

TH1-17 Abstract 10
The metalworker’s farm. A study of a medieval “bygård” in Oslo
Author - Edman, Therese Marie, Norwegian Institute for Cultural Heritage Research, Oslo, Norway (Presenting author)
Keywords: building and property, medieval town, Norway
Presentation Preference - Oral

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

The excavations have shown that several of the neighboring properties may also have been used for metalworking. This could mean that the buildings and other features in the excavated area formed part of a metalworking district in the heart of the town of Oslo until a new law, Magnus the Law-mender’s law for the towns, was introduced around 1216. This law regulated metalworking activities to the fringes of the town because of the risk of fire. The excavated building was destroyed in a fire, demonstrating the need for such regulations.

TH1-17 Abstract 11
Finnish medieval brickmakers’ marks as markers of identity
Author - BA Aaltola, Ilari, University of Turku, Turku, Finland (Presenting author)
Keywords: Buildings, Identity, Symbols
Presentation Preference - Oral

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

It’s suggested here that these marks could be used to study both the medieval brickmaking industry and the visual and mental culture behind the marks. Furthermore the comparison of marks in different buildings makes it possible to study the geographic areas where the brickmakers worked. In this way the marks could reveal data about the craftsmen that has not been preserved in written sources. I will also bring up the question of the ethnicity of the medieval brickmakers who worked in the area of modern Finland. Were they Swedish-Finnish or German?
TH1-17 Abstract 13

Urban life in an early byzantine small scale house

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

Keywords: Byzantium, Excavation, Household

Presentation Preference - Oral

The early byzantine settlement of Carinčin Grad in southern Serbia, which is supposed to be the imperial city lustiniana Prima, existed for merely 90 years. Without any marks of earlier or later occupation, the excavations provide undisturbed insight into everyday life in an early medieval settlement of the 6th century. Excavations in Carinčin Grad take place since 100 years. The early campaigns concentrated on representative buildings like churches, while the emphasis nowadays is on the living quarters. Considering the concept and methodology of Household Archaeology, one single room house was excavated in 2014 and 2015 in high resolution with integration of archaeozoology 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 fulfills in the settlement system regarding social, religious and economic aspects. The building accommodated one or more persons who became identified in the lower 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 power is 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 imbued with the integration of the inside of the house and its exterior what depicts the pattern of disposal organisation. This and other 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 the organisation of a settlement.

TH1-17 Abstract 14

The Formation of the three-compartment rural house in medieval Central Europe

Author - Associate Prof. Vareka, Pavel, University of West Bohemia, Plzen, Czech Republic (Presenting author)

Keywords: cultural synthesis, medieval archaeology, rural housing

Presentation Preference - Oral

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

TH1-17 Abstract 15

Special building materials?

The architectural importance of placed deposits in early medieval Europe

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

Keywords: Architecture, Society, Worldview

Presentation Preference - Oral

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

The main focus will be on two widespread patterns: the placement of objects under hearths or floors, and the burial of material (especially animal remains) in doorways. The paper will argue that such deposits should be viewed not as accessories to a self-sufficient, completed structure, but as integral components of the building’s architecture, 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 (Barešcinović, Taralidžević, 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 correlation matrices” with as many as possible dated or characterised by other parameters samples. According to them it would be possible to determine at least approximate data of the newly found interesting brick of unknown chronology or to compare other features.

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

Aiming to obtain more precise interpretation of brick origin and technologinal processes using geochemical methods it would be useful: a) to take more (10) sub-samples from the same brick (avoiding the effect of random sample selection), b) to take samples from the inner part of the brick (reducing anthropogenicgeochemical 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.

THI-18 Abstract 01
One burial at a time: Integrating eventful archaeology and mortuary analysis
Author - Polanyi, Tamas, Northwestern University, Evanston, United States of America (Presenting author)
Keywords: Bronze Age, death ritual, social change
Presentation Preference - Oral
Social change often comes as a thunderbolt shattering structured and institutionalized landscapes of human-material relations. Social change generally becomes recognized and experienced as an event. It is perceived as a single, synchronous episode affecting multiple intersecting spheres of life. Most of social progress, however, remains invisible, hidden from the broader public and from the outside observer with no durable and less visible material traces. Nevertheless, it is critical to recognize that individual occurrences of negotiating stasis and change contribute to the particular shape events take. Additionally, such occurrences construct the social, political and economic circumstances that enable events to have a sweeping material effect on society. Observations are exponentially significant in the study of past societies. In archaeological analyses major transformations become recognized mostly through detectable and durable broad scale ruptures in the articulation of people and material resources. Most processes leading up to such events remain invisible. The goal of this paper is to provide a theoretical framework for the analysis of social negotiations shaping major shifts in European prehistory. Integrating Victor Turner’s theory on ritual process and William Sewell’s concept of historical change I will present a historical processualist approach to death rituals. I argue that a contextual and sequential analysis of funerals is a powerful tool to reveal micro-political processes contributing to broad historical transformations.
How they 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 Unicite culture. The amount of imported metal had, however, not yet reached a level, which allowed the creation of formal hierarchies.

Hoard and deposition sites 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 type groups indicates that someexamples 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 chieftains were able to monopolise external exchange, increased competition for status facilitated and might have led to the formation of self-perpetuating elites. The occurrence of large ‘chieftain’ houses and the increasing number of metal objects evident from 2000 BC onwards shows that certain individuals and/or lineages were successful in creating a production surplus to be exchanged for metal objects and that these lineages were able to obtain influential positions in the exchange networks over time. The creation of chieftain structures was, of course, a long and complicated social process with no single explanatory factor, as clearly illustrated by copper imports in the Early Neolithic, which did not lead to the formation of formal hierarchies.

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

TH1-18 Abstract 03
New types of longhouses as a result of an increasing need for storage in Late Neolithic?

Author: archaeologist Borup, Per, Horsens Museum, Horsens, Denmark (Presenting author)
Presentation Preference: Oral

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

TH1-18 Abstract 04
Notion of the individual in archaeological interpretation of Neolithic – EBA transition processes

Author: PhD Paulinova, Karolina, Center for Theoretical Study, Charles University in Prague, Prague 1, Czech Republic (Presenting author)
Keywords: Early Bronze Age, individual, Late Neolithic
Presentation Preference: Oral

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

The most common prehistoric monuments of the period in the UK are round barrows. They differ from the Neolithic practice of long barrows that are not notable as a function of economy building or barns, but also in the funerary deposits they contain. Long barrows usually enclose disarticulated remains of several individuals in a single deposit, whereas round barrows contain primary graves, sometimes with grave goods and secondary burials of individuals added later.

I adhere to the premise that material culture provides a means to develop an understanding of social dynamics. If so, how individuals are buried reflects the behaviour of social groups which in turn arises from the interactions between individual group members. The changing relationship between the living and the dead, reflected in the changes to funerary practices, thus allows us to study the relationship between individual interactions and group level behaviours.
In 1973, Colin Renfrew published *Monuments, mobilisation and social organisation in Neolithic Wessex*. This seminal study examined how the amount of time invested in monument building changed throughout the Neolithic period in south central England. Renfrew’s (1973) calculations appeared to demonstrate that the number of ‘man-hours’ invested in building monuments increased as the absolute numbers of individual monuments fell. On the basis of these findings, Renfrew (1973) argued that a number of hierarchical, centrally controlled chiefdoms had emerged in Wessex by the Late Neolithic / EBA period. He surmised that whilst the smaller, tribal societies of the earlier Neolithic had built many, small monuments, the later and more populous polities of the Late Neolithic harnessed labour from vast geographical territories in order to build the few large henge enclosures of Stonehenge, Avebury, 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 exerting power and control in Britain. Moreover, in contrast to earlier, culture-historical models of the past, Renfrew’s (1973) explanatory framework succinctly demonstrated how internal processes, not external influences, could drive large-scale social change. Throughout the 1980s and 90s, however, a number of researchers began to question Renfrew’s (1973) claims and the anthropological theory that underpinned them (e.g. Hodder, 1985; Barrett, 1994).

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

This postprocessual view garnered particular popularity within the field of British prehistoric monumentality and, from 1980 onwards, was a central aspect of archaeological research (e.g. Pears and Richards 1994). This theoretical shift allowed archaeologists to successfully retell narratives of monumentality around the individual but it also had two other consequences. Firstly, the empirical basis of Renfrew’s (1973) thesis was never thoroughly interrogated (though see Starin and Bradley, 1981) and, secondly, alternative narratives of how changing monumentality fitted into large-scale upheavals within social organisation were eschewed.

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

Keywords: Monumentality, Social organisation, Wessex
Presentation Preference: Oral
The development of cooking and food preparation practices transformed 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 Cult). 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 (Liversda and van der Veen 2008; van den Iver, 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. The session encourages researchers who have successfully studied different cultures or periods, passing existing cultural or political boundaries (i.e., from different cultures or European countries) or comparing rural environments to towns, but also those who have encountered difficulties when trying to operate such projects.

**TH1-18 Abstract 12**

**Turganic Settlement in the Southern Ural:**

**Stratigraphy, Planigraphy and Radiocarbon Chronology**

**Author:** Prof. Muruganova, Nina, Orenburg State Pedagogical University, Orenburg, Russian Federation (Presenting author)

**Co-author(s):** - Turietich, Michael, Volga Region Branch of Institute of the Russian History of Russian Academy of Sciences, Russian Federation

**Abstract:**

The archaeological record of Turganic settlement has been investigated (1982, 2014-2015). The stratigraphy on all excavation trenches 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 80% of the find are represented with blades and tools made from blades, about 20% are represented with flakes. The tools are varied considerably in size – from microblades to unbroken blades of more than 10 cm. The tools made of blades are represented with end-scrapers, chisels, sharp points, arrow heads, and blades with denticulation. The finding of an accumulation of semi-finished products and unbroken tip made of large bones of horse, bear, and deer horn, that were surrounded by flint microliths is very important. The found copper ingot which has been attributed as an object of Balkan origin also can be dated as Eneolithic. The BA-complex (Early Bronze Age) was well-represented findings as ceramics (about 2000 fragments of more than 50 vessels), animal bones, wreathages of construction stones, macro products made of sandstone and big pebbles, tools made of bones are numerous. Possibly, the findings of fragments of copper ore and slags, as well as stone casting moulds, are also related to this complex. The found pendant with through hole and small horns made of plain bone blade is similar to the materials of the early Yamnay culture.

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

The series of 15 radiocarbon date based on animal bones from all the sections of the settlement area, and from different depths was undertaken. The materials of E-complex have been dated approximately by 4900-4400 BC (cal). Above that, some materials can be dated approximately by 4250-3950 BC (cal). The dates of radiocarbon dates based on animal bones from the upper cultural layer confirmed previously established data based on the shadings ceramics from Turganic settlement. The BA-layer could be dated by 3900-3400 BC (cal).

The evidence of preparation techniques is supported by the remains of flora and fauna that are indicative of food choice and alimentary practices. Later, from the historic period onwards, we have textual documents which add much detail in form of economic documents, recipes, and personal observations on food consumption.

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

**TH1-19 Abstract 01**

**The Chenopodium album presence in Romania Prehistory. Sign of consumption?**

**Author:** Golea, Mihaela, National Institute for Research and Development in Environmental Protection, Bucharest, Romania (Presenting author)

**Keywords:** archaeology, Chenopodium album, seeds

**Abstract:**

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

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

This work was performed through the Partnerships in Priority Areas Program - PN II, developed with the support of UEFISCDI, project no. PN-II-RU-TE-2013-4-2302.
**TH1-19 Abstract 02**  
**Bronze Age foodways in the Carpathian Basin: similarities and differences, continuities and changes**  

**Author:** Prinke, AnnaMaria, University of Pécs, Pécs, Hungary (Presenting author)  
**Co-author(s):** Fehér, Őri, Szteventy, Vajk, Hungarian Academy of Sciences, Budapest, Hungary  
**Keywords:** Bronze Age, Carpathian Basin, subsistence economy  
**Presentation Preference:** Oral  

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

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

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

The Argaric society was developed during the Early Bronze Age (c. 2200-1550 BC) in the South east of the Iberian Peninsula, and became one of the most important societies in continental Europe. This society had a very characteristic pottery repertoire with a high degree of standardisation distributed in 8 ceramic forms. Nevertheless, the Argaric ceramics have generally been studied from a morphometric point of view, rather than their functional aspect. In this context, the organic residue analysis has been applied on just two occasions and on a small set of ceramics. For the first time in an Argaric context, we have investigated the molecular and isotopic composition of organic residues (by gas chromatography and mass spectrometry) over a wide suite of ceramics (43 pottery sherds) from two of the main Argaric sites: La Bastida (Totana, Spain) and La Almoloya (Pliego, Spain). One of the key results is the detection of volatile substances in Argaric pottery related to the use of beeswax. To ascertain the feasible sources and transformation processes of the identified oils, we have conducted heating and processing experiments of modern raw honey in ceramic, based on ethnographic references. Our results shed new light on the reconstruction of human feeding Argaric practices. The identification of lipids derived from beeswax in a specific archeological context allow us to infer and hypothesise different uses for beeswax in addition to secondary uses of honey by Argaric societies.

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

**Author:** Dr. Antoni Ferran, Integrative Prehistory and Archaeological Science, Basel, Switzerland (Presenting author)  
**Co-author(s):** 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 most parts of the planet during the past 10,000 years. They can be consumed in a large variety of ways (groats, bulgur, flour, bread, etc.), which makes the archaeological recognition of cereal food remains extremely difficult. In the last decade, a larger number of archaeobotanists have shown their concern for the identification of archaeological fragments of cereal grain produced prior to charring. Their identification seems to remain somewhat problematic, and their interpretation is open to discussion. They are often seen as evidence of bulgur production, but how can we exclude that they were not produced during cereal dehusking or threshing, or during production? During the last years we developed three independent lines of research that we would like to combine in this presentation. These are of different nature: ethnoarchaeobotanical, experimental and archaeobotanical.
Since 2013, archaeobotanical studies are led on the Islamic rural settlements of Albalat (Extremadura, Spain) and Las Villas (Aragon, Spain). These studies, based on about 150 samples extracted from various types of domestic (kitchens, ovens, storage and patios) and craft (forge) contexts, allow us to propose a first review on past agricultural biodiversity and practices in rural al-Andalus, based on direct material evidences. From the analysis of the carpological samples, 19 cultivated/gathered taxa were found: 7 cereals, 1 pulse, 1 technocult plants and 10 fruits, and approximately an additional 20 seeds/wild plants. This communication will characterise Islamic diet and agricultural practices in rural al-Andalus, compare the spectra obtained with those existing during previous periods and enlighten the possible introduction and role of “new” or “exotic” plants in rural contexts.

**TH1-19 Abstract 07**

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

**Author:** Prof. Valeroti, Soutiana Maria, Aristotle University of Thessaloniki, Thessaloniki, Greece (Presenting author)

**Keywords:** ancient plant foods, prehistoric Europe

**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 Aegan 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. Stefania Jacomet), University of Hohenheim in Germany (Dr. Hans Peter Shaka) 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 or sample collection and analysis, early European cuisine's development will be reconstructed, and we will present an overview of the available data. Research questions and lines of investigation will be followed to answer them.

**TH1-19 Abstract 08**

**Medieval alimentation habits deduced from archaeobotanical studies of cesspits**

**Author:** Dr. Wiethold, 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 recovered, abundant plant remains were recorded, but the archaeobotanical data sets from cesspits are hampered by taphonomic problems. Olives, spices, collected and wild fruits are in most cases much better preserved than cereals and pulses. Nevertheless, despite quite different preservation conditions for different types of plant food these emblematic deposits of faecal remains and kitchen waste are most suitable for comparisons due to a high number of recorded taxa of cultivated and wild edible plants used by humans. Rescue excavations conducted by the Institute national de recherches archéologiques preventives (Inrap) in the medieval towns of Sarrebourg and Toul in eastern France revealed waterlogged and mineralized plant remains in huge quantities. These towns have developed since Roman times and some of the recorded spiced seeds and other cultivated plants are at least introduced since Roman times. These data of recent studies are confronted with archaeobotanical results from late medieval and early modern cesspits coming from the harbor towns of the Hanseatic 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 12

Problems and progress in the study of postmedieval archaeobotany in London
Author - Stewart, Karen, Museum of London Archaeology, London, United Kingdom (Presenting author)
Co-author(s) - Delia Garcia-Scott, Christie, University of Antioquia, Medellin, Colombia
Keywords: Archaeobotany, Postmedieval, Food choice and alimentary practices, Urban

Presentation Preference - Oral

In the 18th and 19th centuries, London was at the heart of the British trading empire. The collection, propagation and cultivation of new plant species from its colonies was a focus of the British Empire and its naturalists, and this had a huge impact on foodways in Britain. Archaeobotanical evidence from this period has tended to be underevaluated in the past, with funding often biased towards earlier periods. This paper will demonstrate the results that can be gained when environmental research aims are fully incorporated into the project design from the outset, presenting some lessons learned and data produced from a commerciallyexcavated site in the centre of London. Well preserved archaeobotanical remains from this site help to build a picture of London society in the 18th and 19th centuries. Results show that the occupants of the site had access to plants from the Americas and Asia, as well as those grown more locally, though the continued absence of certain plants in the archaeological record was also noted. The use of imported plants for the production of alcohol was also found at the site, presenting evidence of the ‘GIN Craze’ which swept London in the 18th century.

TH1-19 Abstract 13

Unmasking millet from a multi-proxy approach
Author - Vigil-Escalera Guirado, Alfonso, Universidad de Salamanca, Madrid, Spain (Presenting author)
Co-author(s) - Aceituno Bocanegra, Francisco J., Universidad de Antioquia, Medellin, Colombia
Keywords: archaeobotany, multi-proxy, millets

Presentation Preference - Oral

An extensive palaeobotanical sampling program was carried out at the Early Medieval village of Gózquez (central Spain, AD 525-750). It is one of the most comprehensive collections of botanical remains so far analysed for this kind of geographic and chronological period. Among the 8800 items from 34 positive samples were retrieved. Hulled barley and free-threshing wheats were the dominant species. Hulled barley and wheat were present in minor proportion, and Avena only appeared sporadically. In this setting, any trace of millet production and consumption seemed to be completely absent. Other technological and nitrogen isotopic analyses performed on bone collagen of 40 individuals buried in the cemetery and some sites of the same village revealed a first surprising result: villagers widely consumed C4 plants. Since no such crop was identified in the carioplogical record, starch analysis of the grinding surfaces of some roller milling stones were performed as an alternative proxy. These revealed abundant starch grains of Panicum or Satalea in all the four items analysed in the first round, in addition to wheat, barley and oats. At this point, we realised of several possible explanations for the invisibility of the production and consumption of millet at Gózquez. Insufficient sampling, uneven preservation of carbonized plant remains, or complete district routines in the processing of different cereal types may be possibly argued. Whatever the right explanation, this case study suggests that we should be extremely cautious when drawing conclusions if there is no way to consider unexpected biases on archaeological and palaeobotanical records.

TH1-19 Abstract 14

Meals on Wings: Multi-strand investigation of avian contributions to the alimentary and nutrition
Author - Dr. Beat, Julia, Bournemouth University, Poole, United Kingdom (Presenting author)
Co-author(s) - Dr. Maltby, Mark, Bournemouth University, Poole, United Kingdom
Keywords: Avian Archaeology, Eggs, SEM

Presentation Preference - Oral

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

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

TH1-19 Abstract 15

Digenesis, biostatonomy and taphonomy: Seeking out the pathways to destruction or preservation
Author - O’Meara, Don, Newcastle, United Kingdom (Presenting author)
Co-author(s) - O’Meara, Don, Newcastle, United Kingdom (Presenting author)
Keywords: Archaeobotany, Taphonomy

Presentation Preference - Oral

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

TH1-19 Abstract 16

Reconstructing the Greek Byzantine Diet using a comparative analysis of archaeozoology, isotope studies and literature
Author - Janine, van Noorden, Leiden University, Leiden, The Netherlands (Presenting author)
Keywords: Late Byzantine period, archaeozoology, faunal remains, Euboea, Chalcis, Venetians, dietary variation, animal exploitation

Presentation Preference - Oral

Until now, not much archaeological research has been conducted on faunal diet in Late Byzantine Greece. Most of the knowledge on the diet in Greece from this period is based on literature studies. Recently, isotope studies have also contributed to wider knowledge. However, so far no archaeozoological analysis has been conducted, focussing in this topic. The main goal of this research is to contribute to filling the lacuna of knowledge of the food supply in the Late Byzantine period in Greece and comparing the results to the existing data from isotope and literature studies.

As a case study for this research, faunal material from Chalcis will be studied. In Byzantine times, between the 10th and 12th centuries, Chalcis was the harbour for Thebes in Boeotia, one of the most important centres in this region. Later, from the 13th century, the city became a trading colony and transit port for the Venetians. The excavated material from a rescue excavation in...
the current city centre is extremely diverse (including glazed and unglazed earthenware, metal, glass, coins) especially within the material culture (i.e. wooden remains, burial relics, amphora for transport). This indicates that Chalcis was an important distribution centre with contacts in Venice and Constantinople. This makes the research interesting not only by creating a dietary image of Byzantine Greece, but also to see whether intercultural changes in diet have taken place between the Late Byzantines and the Venetians. From its prominent geographical location, Chalcis, with its well analysed stratigraphy and vast quantity and quality of faunal material, it offers the unique possibility to fill the absence of knowledge surrounding the food supply of the Byzantine period in Greece.

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

**TH1-19 Abstract 17**

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

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

**Keywords:** archaeobotany, diet

**Presentation Preference - Poster**

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

**TH1-19 Abstract 18**

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

**Author:** Dr. Perego, Renata, Integrative Prehistory and Archaeological Science IPNA/IPAS, Basel, Switzerland (Presenting author)

**Keywords:** archaeobotany, Middle Bronze Age, Panicum miliaceum

**Presentation Preference - Poster**

In the Neolithic Northern Italy, broomcorn millet (Panicum miliaceum) remains are sporadic and doubtful. Certain identifications originate from two Chalcolithic sites: Monte Cosvelo and Velumbo-Tangagase. 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. Agropyron repense, Medicago minima, Chicorium intybus, Onopordum acanthum, Pastinaca sativa, Silene stellata, Verbeiaum sp.) favour dry and warm habitats. It is in this scenario that broomcorn millet started to be widely cultivated. The ecological tolerances of broomcorn millet should also be considered in order to explain its adoption in a multiple cropping system. It is a summer crop, soon very late in spring, as it does not withstand frost during germination. It grows well in regions characterized by warm and Mediterranean-type climate with a short rainy season, on poor soils and under severe droughts. The MBA Garda region held very well all these environmental features. All in all, ecological drivers seem to have played a significant role in spreading the cultivation of broomcorn millet in the Garda region. Furthermore, social processes and economic relations are not to be excluded in the perspective of an overall process of improvement of crop husbandry practices.

We can conclude that the plant economy of Middle Bronze Age in Northern Italy is well characterized by introduction of new cultivars (broomcorn millet), together with an intensification of pulse cultivation (horsebean), and a diffusion of rotation systems.

**TH1-19 Abstract 19**

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

**Author:** Branco, Rute, Universidade do Algarve - FCHS / INRAP, Faro, Portugal (Presenting author)

**Co-author(s):** Valente, Maria João, Universidade do Algarve - FCHS /CIAAAP, Faro, Portugal

**Co-author(s):** Arruda, Ana Margarida, Faculdade de Letras de Lisboa - UNIRAP, Lisboa, Portugal

**Keywords:** Diet, Islamic, Zooarchaeology

**Presentation Preference - Poster**

The Tejo do Praio site is a Medieval Islamic settlement dating from the 10-12th century, located in Quinta do Lago in Loulé, Algarve, Portugal. Nowadays, the site is approximately 1.6 km from the coastline, within the Ria Formosa Natural Park. The unique nature of the site - due to its rural nature, residential areas, types of structures and proximity to the coastline - raises several questions, such as the importance and characterization of the exploitation of aquatic resources for this Islamic community.

The main objectives of this study are to understand the local diet, to characterize the exploitation strategies of wildlife resources and to do an environmental characterization of the area during the occupation period. The results will then be integrated in what is already known for other Medieval Islamic contexts in Algarve. For this we will do the zooarchaeological analyses (classification of remains, abundances, anthropic and other modifications, biometry) of the aquatic invertebrate remains. Ultimately, zooarchaeology informs us on diet behaviour by studying the mechanisms used in the exploitation of natural resources by past societies, the processing techniques developed for animal resources and the possible trade of resources and commercial routes.

So far data show a greater abundance of Cerastoderma edule (common cockle), followed by Ruditapes decussatus (clams), species that presently are quite common in region, well known as the highest mollusk production area of Portugal. Among other identified species are Ostra edulis (oyster), Mytilus cf. galloprovincialis (musel) and Solen marginatus (razor clam). Venus verrucosa (venus) and remains of Pectinidae family (scallop). The level of fragmentation is very heterogeneous across the contexts, from a mix of pre- and post-depositional agents.

**TH1-19 Abstract 20**

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

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

**Keywords:** zooarchaeology, diet, parasites

**Presentation Preference - Poster**

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

**TH1-19 Abstract 18**

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

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**Keywords:** archaeobotany, Middle Bronze Age, Panicum miliaceum

**Presentation Preference - Poster**

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We can conclude that the plant economy of Middle Bronze Age in Northern Italy is well characterized by introduction of new cultivars (broomcorn millet), together with an intensification of pulse cultivation (horsebean), and a diffusion of rotation systems.
Fishing has been one of the simplest sources of livelihood in prehistory. Where available, fish constitutes an important food resource. Apart from the nutritional value, all parts of the fish have been utilised for various purposes. Humans’ adaptive and innovative ability to conquer new ecological niches and to respond to environmental stress led to the invention of new fishing technologies and e.g., mass-harvesting facilities and highly organised procurement strategies. Sometimes fisheries are labour-intensive and collective effort may have been required. Hence, fishing techniques may be closely related to the socioeconomic, cultural, and sociopolitical systems in fishing communities, as well as to population dynamics. Cultural constraints, behavioural interactions, and social norms might have regulated fishing and the consumption of aquatic resources. Exploitation technologies might express group identity, and provide insights into contacts and communication between different fishing societies. Still, aquatic resources and procurement technologies are often poorly visible in the archaeological record. Therefore, knowledge about the importance of fish in prehistoric subsistence is often quite uncertain.

This session aims to deepen current knowledge within the framework of local, supra-regional, and diachronic development and application of active and passive fishing techniques in the harvesting of aquatic resources as well as other linked activities. Settlemet patterns, site location, fishing technology, and resource specialisation reflect the utilisation of fish as a food source, or as a source of raw materials. Therefore, apart from studies utilising archaeological fishing-related materials, we would also like to encourage researchers contributing studies applying analogous data, from the viewpoint of, e.g., ethnography, anthropology, and ethnohistory to help build the frames of reference and further our understanding about fishing as a phenomenon and its longterm dynamics.
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 to the haft. Leister prongs were frequently used as spearheads, and the bone point was used as a fish hook. Spear heads from coastal sites are often made of bone and antler, and their manufacturing technology can be observed in early Neolithic contexts. The production of bone spearheads was a skilled activity that required knowledge of the anatomy of the animal and the technology of working bone. The spearhead was attached to the shaft using a variety of techniques, such as the use of sinew, bone, or antler. The spear was probably used for hunting both in the sea and on land, and it was an important tool for survival in coastal hunter-gatherer societies.
methods, does not allow to get a full view of the wood use and woodland management strategies adopted by prehistoric fishers. During the last few years this topic received more attention. All wooden finds from recent excavations at Šventoji archaeological complex were analyzed using microscopic and micropaleo-ecological-anatomical identification of tree species, in some cases also identifying felling season and some tree growth conditions. This new data allows us to draw some insights into woodland management strategies, adopted by prehistoric fishers living on lagoon shores and riverbanks. In this report we would like to present the latest results of systematic analyses of wooden artifacts unearthed at Šventoji in 2014 and 2015.

TH1-20 Abstract 9
Subneolithic fishing in the southeastern Baltic in the light of recent research at Šventoji 43

Author - Gaidžauskas, Lukas, Vilnius University, Lithuania (Presenting author)
Co-author(s) - Dr. Piličiauskienė, Giedrė, Vilnius University, Lithuania
Co-author(s) - Dr. Piličiauskas, Gytis, Lithuanian Institute of History, Lithuania
Keywords: Šventoji, fishing, Subneolithic
Presentation Preference - Oral

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

Šventoji 43 is distinguished from later Subneolithic sites of Šventoji by the presence of blades and microliths in the lithic assemblage and pottery which bears close resemblance to the typical Comb Ware. It is also evident that amber was worked directly on the site and shaped into ornaments, whose forms are identical to those found at Comb Ware sites in the Eastern Baltic. Archaeological wood has already perished, but a great quantity of both burned and unburned, mostly very fragmented bone was recovered, amounting to ca. 26,000 fragments. 1436 fragments of bone belonging to fish, seal and forest mammals were identified. The greatest number of identified fragments come from seals among mammals while the majority of fish bones belong to pipe and zander. Fish bone analysis shows that the main activity on site was fishing of pipe and zander in the lagoonal lake during the spring and autumn season.

TH1-20 Abstract 10
Backing up the frail evidence of the utilisation of Atlantic salmon in Mid-Holocene Finland

Author - Kövisto, Satu, University of Helsinki / National Board of Antiquities, Espoo, Finland (Presenting author)
Co-author(s) - Nummiren, Katarina, University of Helsinki, Helsinki, Finland
Keywords: ethnography, prehistoric fishing, salmon
Presentation Preference - Oral

The archaeological evidence confirming the significance of salmon fishing in prehistoric Finland is weak. Based on historic sources, mass-harvesting of migratory species, such as Atlantic salmon (Salmo salar) and whitefish (Coregonus lavaretus) formed the basis of the northwest coastal river economy far into the 20th century. Consequently, the prehistoric origin of salmon fishing in the area is being perceived as a self-evident fact, even though the direct osteological and artefactual evidence confirming this is scarce. The settlement pattern, site locations and technological level achieved in fishing in the Mid-Holocene (c. 3500–3000 cal BC) reflects the complexity of coastal aquatic resources. The external demand for fish, largely by the local population, led to increased fishing efforts and exploitation. Moreover, it must be assumed that fresh water fishing was more common than it seems.

This paper focuses on the investigation of fishing equipment and fish remains. Data will be compiled from the secondary information to be used in archaeological reasoning and interpretation. Analogous data may also provide important tools for understanding the fragmentary and biased archaeological record and open up new avenues for exploring prehistoric freshwater fishing communities. Our knowledge of Roman fishing is based on a wide range of written and pictorial as well as archaeological sources. The study of the latter came into academic focus in the past few years (cf. International Workshop “NETS AND FISHING GEAR IN CLASSICAL ANTIQUITY: A FIRST APPROACH”, University of Cadiz 2007). All sources teach us about techniques and fish consumption as well as fish processing to manufacture the famous garum. Ancient authors (cf. Ovians’ Fasti Arauculae) and some rare inscriptions give us insights in the organisation and socio-economic structures behind the Roman fishing industries. Most of these sources originate from the Mediterranean.

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

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

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

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: north-western provinces, Roman fishing, Swiss Plateau
Presentation Preference - Oral

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What is the role of cultural heritage for poverty alleviation in coastal areas of Latin America? Along the coastline of Brazil, small-scale fisheries are a traditional and crucial source of food and livelihood for thousands of people. Brazilian coastal communities efficiently integrate modern small-scale fishing techniques with pre-colonial indigenous knowledge, as a ‘neotraditional’ mix. In one of the poorest areas of Latin America, the coastal areas of Maranhão (northern Brazil), this culminates in the use of historic fish traps (locally known as camboas), built by indigenous populations likely before the European Encounter. We will present the results of a multidisciplinary research effort aimed at exploring and documenting the contribution of this coastal cultural heritage to food security and community livelihood in mitigating poverty in coastal areas of Latin America.
of cremated remains allows to discuss sex-age characteristics of the group from Shekshovo. The data on the ratio of strontium isotopes (87Sr/86Sr) in the cremated remains may be used for the reconstruction the level of mobility of the population and for the identification of individuals newly arrived from other areas.

Field research in Shekshovo proves that burial sites with superficial cremations could survive on the land plots after intensive long-term agricultural cultivation. Discovery of these sites becomes realistic with the introduction of the more advanced approaches to the investigations and processing of osteological remains.


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

Author - Annet, Rica, Flemish Heritage Agency, Brussels, Belgium (Presenting author)
Co-author(s) - Lentacker, An, Flemish Heritage Agency, Brussels, Belgium
Co-author(s) - Deforce, Koen, Flemish Heritage Agency, Brussels, Belgium
Keywords: cremation, interdisciplinar research, Merovingian cemetery
Presentation Preference - Oral

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

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

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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 Moskve region were unknown until the last years. Systematic studies of these cemeteries have been done over the past 15 years only. All known burial sites are located in the Middle and Upper Oka river, from Kolomna to Staritskoye (Moscow region). Rite feature is that burned bone fragments placed on the ground surface. Ums were used rarely. The compact deposition of cremated bones suggests that they were put in any organic (leather? textile? wood?) boxes. There are no pits in these ground cemeteries. That is why these sites were not detected for a long time. Now for seven cemeteries of different ages are known. The earliest one goes from V. c. and the most late has been dated to the XII century. These dating based on the grave goods characteristics. Some burials have no any grave goods. The age of these burials were have been dated by 14C (charcoal samples). All findings are presented with imported products, which complicate the cultural attribution of the graves. Possible Slav and Finish jewelry and buckles can be present in the burials together. Matted beads, melted objects from the bronze and silver chain mail parts, spondylus and buckles go from different European, Byzantine, Syrian and other centers. Glass beads and silver ornaments as well as jewelry from the different parts of Kazan Khanate characteristic Viking Age burials. The latest burials contain grave goods that are typical for the period of Old Russian state. Most things badly damaged pyre, melted, and cannot be
recognized. The human bones and animal bones are present together constantly. In some burials, animal bones predominate. During studies it was determined the sex, the age of the buried, the temperature of burning. In some cases, it was possible to determine somata.  

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

However, a small number of cremated burials in the Old Russian barrows of the Xth beginning of the XIX centuries were excavated in the west part of Novgorod land. This group of burials has never been the subject of a special study for archaeologists. In the field reports and publications they have been interpreted as “a relic of paganism” without any arguments.

Micro-topography analysis of the cemeteries shows that such mounds with the cremated remains were not separated from the other mounds and located in the early part of the burial groups. The mounds with cremations and the mounds with inhumations of the same period are identical externally and internally. Simultaneously the cremated remains are quite different from the cremations of earlier times (for example, the Culture of Long mounds, Sopka culture, etc.) in size and in the degree of burning. The remains were scattered on the bottom of the burial pits, their size and shape are very similar to the inhumation graves. Finds (iron, 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 clearly understand that Christian burial can be disrupted. Probably the cremation was the only possible way to deliver the body to the family cemetery, where the deceased could be reburied according to traditional 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) failed to bring the body to his relatives for burial at home.

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

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

**Keywords:** Lodges of dead; mortuary archaeological approaches, cremations

**Presentation Preference - Oral**

**Lodges of dead** – the special type of burial sites which was typical for the Mologa-Shekina interface and other parts of the Russian North and central region of the European Russia. This name comes from the special wooden structures (small houses - lodges) with materials of the funeral cremations as well as ash, pieces of bone, fragments of bronzes, iron, glass, bone grave goods. The tradition of this type of structures stretches for many centuries, from the first cc. BC to the end of the first millennium AD. These archaeological sites of the Mologa-Shekina interface (western part of the Vologda district) were excavated by A.N. Bashkenev (1) during 80-90 years of XX c. The author did not formulate the clear opinion about the ethnocultural background of these sites (2). Skeletal materials from “lodges of dead” of this region were not studied till nowadays.

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

According to the results of our research, every “lodge of dead” includes the remains of about 7-10 individuals (males, females, subadults). The fragments of the treated animal bones were detected as well. 87/86 Sr bone ratio indicates the presence of the individuals who lived on different territories. Their remains were deposited inside burial structures (“lodge of dead”) together. The burial assemblages were 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 charcoal, ash, melted grave goods. There is no individual burial space inside the “lodge of dead”. This structure includes all the individuals who were buried at different times together.

**Bibliography:**


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

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

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

**Presentation Preference - Oral**

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

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

**Author** - Dr. Vitas, Gintautas, Vilnius University, Vilnius, Lithuania (Presenting author)

**Keywords:** burial tradition, cremation, underwater graves

**Presentation Preference - Oral**

At least three underwater burial sites with cremated graves from to the 14th century have been investigated in Eastern Lithuania. In recent years, the cremation graves were discovered close to Kernave town of the 13-14th centuries. In the dried stream watercourse about 13 kg of cremated human and animal bones, pottery and metal artefacts from the 14th century were discovered.

Burials in the water have received various scientific interpretations. The report provides the archaeological research data analysis of Kernave burial site and reveals the relation of this object to contemporaneous town. The essential question – whether the burial in water was a long - time tradition or was it only the consequence of important historical events – is answered. The archaeological evidence of this case do not allow us to state the chronological continuity of the burial in water.

Based on artifacts typology Kernave burial site can be dated rather broadly (the 14th century). However cremated underwater graves are essentially treated as a mass burial site, where there are no boundaries among individuals. Mass graves, whether in water or on land are usually interpreted as a simultaneous consequence of deaths of several persons. So, the possibility remains that all the dead were buried there because of the certain circumstances, which occurred for the short period of time. Thus not only burial site was massive, but also the cremation process itself. It also should be noted that when the deceased was buried in this way, any grave personalisation opportunity disappears. East Lithuanian region is noted for barrow burials tradition with very conservative funeral customs which existed 1000 years until the 13th century. Barrow was installed and used for a long time as a posthumous dwelling for a certain family. The specific individual burial place had to be important and at least several family generations were familiar with it. Therefore, the cardinal change of these traditions had to be the consequence of sudden and unavoidable events. Perhaps these events were the cause of death of significant group of persons. In this context, the attention should be drawn to the fact that precisely in the second half of 14th century the eastern Lithuania was reached by the largest forces of German Order and during the attacks of 1385 and 1390 Kernave town was left in ruins. Furthermore, precisely at that time the “black death” spread throughout Europe and perhaps plagues could reach Kernave too.

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**TH1-21 Abstract 09** **Urn Cremation in the Southeast Baltics in the late Roman period. Field record sand laboratory study**

**Author** - Dr. hab. Mastyko, Anna, Institute of Archaeology, Russian Academy of Sciences, Moscow, Russian Federation (Presenting author)

**Keywords:** late Roman period, Southeast Baltics, 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 biocarchaeological approaches.

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

Romanov-Pugachev pond - one of the monuments, which was opened recently in the Zelenograd district of Kaliningrad region (East Prussia). Some graves disturbed by robbers, but one urn burial with cremation has been intact. The vessel was filled with heavy clay soil. Recording and sorting out the urn contents took place in the laboratory. Contents of urn studied in layers, taking into account the depth of the layer. As a result, it was revealed that the burned bone fragments were placed in an urn without anatomical order. Weight cremated bones indicates that the cremated fragments of the funeral pyre was collected selectively, but not completely. The most parts of cremation are located in two layers of the urn: at the bottom and in the middle. Objects of iron and iron weapon (ax, spear, umbo and other fragments) tightly putted above of each of these two clusters of the cremated bones.

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

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

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

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

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

Author - Dr. Tatyana, Shvedtikhova, Institute of Archaeology Russian Academy of Sciences, Moscow, Russian Federation (Presenting author)
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Keywords: Gnezdovo settlement, cremation, human remains, taphonomy

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

1 Syrovatko, A.S., Kolomna archeological center, Kolomna, Russian Federation

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

Author - Garcia-Piquer, Albert, Autonomous University of Barcelona, Barcelona, Spain (Presenting author)
Co-author(s) - Edelevé, Jordi, Autonomous University of Barcelona, Barcelona, Spain
Keywords: Ethnoarchaeology, Mesolithic, Shell-middens
Presentation Preference - Oral

Mesolithic shell-middens sites have been used to support the existence of economic intensification and reliance on marine resources and sedentism. The archaeological visibility of shell-middens and the good preservation of archaeological remains have led to a long tradition of research. Nevertheless, the stratigraphic analysis of shell-middens always carries specific problems, given their very heterogeneous nature and the successive post-depositional processes that may have occurred. Indeed, traditional methods and techniques of excavation as well as the character of 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 littoral resources. Thus, in the frame of these projects, we excavated two settlements of the eighteenth and nineteenth centuries Yamana people: Tunal-VIII and Lanashua, both located on the northern coast of the Beagle Channel.

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

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 Tunal-VIII site there were at least ten discrete re-occupations in different seasons, whereas in Lanashua only one (maximum two) long occupation period have been registered.

A shell-midden is thus not necessarily a homogeneous block of sediments and the variability inside can be very significant of the economic and social system that produced it. Experimental ethnoarchaeology is a useful tool, providing guidelines for excavating and explaining similar archaeological sites around the world. For example, Mesolithic Atlantic Europe shell-middens have been described as residential or logistical based on their size and thickness, or on the amount of remains and sometimes considered sedentary settlements based in averaged samples. But similar shell-middens may be the result of different strategies of occupation. We need to develop specific methodology, maximize and adequate techniques of excavation in order to reconstruct the social organization behind the processes that formed each shell-midden.

THI-23 Abstract 03
Early Mesolithic site in western Norway

Author - Dr. art. Maren, Arne Johan, Museum of archaeology, University of Stavanger, Stavanger, Norway (Presenting author)
Keywords: Dwellings, lithic dispersal patterns, Norwegian Early Mesolithic
Presentation Preference - Oral

It has been hypothesized that western Norwegian Early Mesolithic sites are characterized by a standard lithic tool inventory with a uniform spatial configuration of the lithic debris. Specific lithic dispersal patterns are associated with both dwellings and “open air sites”. The dwellings are mainly identified as tent rings of stone cobbles and with associated fireplaces and lithic debris. These features have been suggested as indicative of the early Mesolithic way of 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 patterns. Aspects of this cultural-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 Tunal-VIII site there were at least ten discrete re-occupations in different seasons, whereas in Lanashua only one (maximum two) long occupation period have been registered.

A shell-midden is thus not necessarily a homogeneous block of sediments and the variability inside can be very significant of the economic and social system that produced it. Experimental ethnoarchaeology is a useful tool, providing guidelines for excavating and explaining similar archaeological sites around the world. For example, Mesolithic Atlantic Europe shell-middens have been described as residential or logistical based on their size and thickness, or on the amount of remains and sometimes considered sedentary settlements based in averaged samples. But similar shell-middens may be the result of different strategies of occupation. We need to develop specific methodology, maximize and adequate techniques of excavation in order to reconstruct the social organization behind the processes that formed each shell-midden.

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
Presentation Preference - Oral

This paper discusses the authors’ development of an empirically based approach for analysis of the Mesolithic use of dwelling space based on theory, concepts and data from mathematics/physics, experimental social psychology, social anthropology as well as archaeology. The underlying assumption is that the space of hunter-gatherers 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.

TH1Interpreting the Archaeological Record

Thursday, 1 September 2016, 09:00-13:00
Faculty of History, Room 331
Author - Cuca-Solana, David. University of Rennes 1, Rennes, France (Presenting author)
Co-author(s) - Marchand, Grégor, CNRS/University of Rennes 1, Rennes, France
Co-author(s) - Little, A., York University, York, United Kingdom
TH1-23 Abstract 05
Back to Beg-er-Vil: from taphonomy to spatial analysis of a mesolithic dwelling in Atlantic France

Author: Marchand, Gregor, CNRS, Renma, France (Presenting author)

Keywords: Dwelling, Mesolithic, Spatial Analysis

Presentation Preference - Oral

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

TH1-23 Abstract 06
New insights into open-air Mesolithic settlement in northern Spain.

Recent research at El Altoro

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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 Altoro (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.
Can pits define a settlement? 
One example from inland Iberia Mesolithic 

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Presentation Preference - Oral

In the last years new discoveries regarding Early Holocene human occupations have been made in inland Iberia, namely in northeast Portugal. One particular site, Foz do Medal, will bring important contributions to the study of Mesolithic communities due to its well preserved records as well as to its location in the border of Spanish Meseta.

Foz do Medal has more than 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 both abiotic and abiotic resources.

Clues to recognize spatial organization and function of the Mesolithic camps from Polish Lowland 

Author - Dr. Ośpiewcz, Grzegorz, Nicolaus Copernicus University/ Institute of Archaeology, Toruń, Poland (Presenting author) 
Keywords: Mesolithic, Poland, Spatial analysis 
Presentation Preference - Oral

The presentation will discuss the results of the interdisciplinary and multifaceted studies, which were subjected to three Late Mesolithic camps from the area of central Poland: Sasinieczo 4 and Ludowice 6 (eastern and western habitats). The studies included: soil, geomorphological and hydrological analysis of the sites area, archaeozoological and taphonomical analysis of the bones, palynology, AMS dating and multivariate analysis of stone artifacts, including: petrography, technology, retting and use-wear study of all artefacts. Spatial analysis were carried out using primarily Kernel density and “Ring and Sector” methods, also GIS equipment and software. As a result the data were collected, that allow to recognize the probable original function and spatial organization of the included camps and individual settlement points (residential and economic) discovered in their area. It were observed clear differences here, which were used as a basis for inference about the seasonality, specialization, functional and structural diversity of the analyzed camps and even their possible relationship with only one gender.
Standard weight systems in ancient Near Eastern politics perform as normative tools, in the hands of state administrations. In their most practical meaning, weight standards serve the purpose of allowing the commensuration between goods and value to be quantified against an objective frame of reference, and noted down in administrative records. Weight standards were issued as ‘norms’, and as such they were often ratified through royal edicts and enforced by public officers. But how far do official standards concur in shaping the practical experience, in particular in economic transactions, and ultimately in producing the materiality we observe in the archaeological record?

Is there any regular pattern we may observe in weighed goods, that we can use to infer normatively-induced economic behaviour? In the attempt to answer such questions, this study is set to empirically address the relation between norm and practice in the formation of the archaeological record, in instances of economic behaviour of Near Eastern Bronze Age states. The study of coherent assemblages of balance weights reveals much about official standards, how widely they were acknowledged within a given territory and how far different official systems reciprocally interconnected. However, from a material perspective, the relation between balance weights and weighed goods remains somewhat obscure. In order to address such a relation, a comparative statistical analysis of two coherent material assemblages will be presented, from the Middle Bronze Age levels at Tell Maridkh/Ebla (2000-1680 BC). 1) the assemblage of balance weights found in different buildings (palatial, religious, defensive and domestic) throughout the Old Syrian town and 2) the unpublished silver hoard containing 171 pieces (ingots, rings, chains, scrap metal) found beneath a floor of dwelling located on the south-eastern slopes of the Acropolis.

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

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

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

**TH1-24 Abstract 03**

Weight - highly abstract measure

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

**Presentation Preference:** Oral

Nowadays in most countries of the world we have one coherent metric system in which every phenomenon can be described using 7 base units. But even in very remote past every unithad its own scope of references and one quantity could be measured using different units depending on physical state, purpose and other properties. Among other measures invented or negotiated the weight is the most abstract one. It is hard to point any natural equivalent that can be used as a comparative amount e.g. as feet, elbow length or the number of eyes, heads of fingers. Even if these units/numbers differs between people there is something like “the ideal model” - every man has 2 eyes, 1 head and 5 fingers in each extremity - except for some rare exceptions.

Or it is possible to establish one benchmark, in which the majority of people fit into with their feet or elbow length. Other quantities were usually counted using proper container, in which the product was consumed ostricase.

The earliest weight units seem to be connected solely with metal production. This particular activity - starting from ore acquisition, acquisition, alloying, refining, up till the end-product - requires very specific knowledge and ability to abstract thinking taking into account that at every stage of this process the material has completely different properties. So in this meaning the beginning of the Bronze Age can also be perceived as a moment of emergence the new, abstract unit - the weight.

In this sense we can connect the materiality we observe among metal objects has also comparable sizes and shapes. Wherefore we should consider whether this comparable weight was exactly the characteristic that the producer had meant to achieve or it was rather unplanned and unaware result of planned size and shape of the end-product. If the first thesis is true we should observe some, not necessarily metal, weight equivalent. In the Bronze Age Central Europe, the evidence for the existence of comparable weight units are scarce and disputable, though we can trace them in the Mediterranean World.

The main aim of the paper is to reconsider whether, and to what extent, the idea of weight in Central Europe is connected with metal production itself. Or whether it is the product of highly organized communities (with well-developed and centralised market), then adopted, without understanding its essence, by Central-European societies of the Bronze Age.

**TH1-24 Abstract 04**

Identifying weights in later Bronze Age Western Europe

**Author:** Associate Prof. Rahmatzor, Lorenz, University of Copenhagen, Copenhagen, Denmark (Presenting author)

**Keywords:** Central Europe, trade, weights

**Presentation Preference:** Oral

In Europe, outside the Aegean, secure evidence for the use of weights is known from the second half of the second millennium. The increasing attestation of weights in Europe has been noted in recent decades by archaeologists, particularly by Christopher F. E. P. Oâ€™Neill for Central Europe, by Andrea Cardarelli and others for Italy, and Raquel Viso for Portugal. These individual authors have contributed immensely to the identification and publication of weights in various regions of Europe, but large blind spots in between these specific research areas still prevail. In some regions we know of balances but no weights have so far been reported – a situation which cannot reflect any ancient reality. In this presentation I will discuss some new finds of weighing equipment in Western Europe from the late second and early first millennium BCE that have been established through systematic research. The identification of weights or scales allows for radical new interpretations for specific sites, the intensity of exchange – i.e. trade – and cultural developments in these regions.

**TH1-24 Abstract 05**

The social use of metrology in the western Mediterranean Iron Age

**Author:** Dr. Gorgues, Alexis, University of Bordeaux Montaigue, Peasac Cedex, France

**Co-author(s):** Poigt, Thibaud, UMR 5608 TRACES, Université Toulouse Jean-Jaurès/Université Bordeaux Montaigue, Toulouse-Bordeaux, France (Presenting author)

**Keywords:** Iberian Peninsula, Institutions, Weighing

**Presentation Preference:** Oral

In this paper, we would like to present the first steps of an investigation aimed at discussing the nature of metrology in a specific context of the Mediterranean Iron Age, the Iberian one. Metrology is basically an institution, whose materiality in the Iron Age is mainly linked with weighing. It can take different aspects. When based on experience, on practice and on spontaneous and mutual agreement, we can speak of a practical institution. When enforced by law, and guaranteed through the activity of magistrates, it is a formal institution that may have, much more than the first one, a secondary impact on the material record: its existence will promote normative behaviour, as the fabrication of standardized pottery vessels.

The use of weights and scales during the Iberian Iron Age is well known and has generated an extensive bibliography. These works rely mostly in two assumptions. The first one is that weighing has to be understood on the widest frame of the trading practices connecting at this time the Iberians with others peoples of the Mediterranean area, namely the Greeks and the Punics. The second one is that the weights themselves are characteristics of a metrology having a wide range of application, including – and often predominantly- the proto-monetary sphere. In other word, the adoption of such technology would have meant the deliberate development of an exotic, formal institution, whose imitation aimed at inserting the native networks in the wider Mediterranean ones. This convergence of the Iberian institutions of trade with those of the “Classical” Mediterranean is considered as part of a wider evolutionary process, which conclusion would be the constitution of Iberian “Early States”.

We will first look for the evidence linked to weighing. Such evidence is overwhelmingly concentrated in the Valencian Country. We will show that here, from the end of the 8th century 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 sketched. 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 routine. On this ground, we will conclude, that in the Iberian context, metrology is not a formal institution enforced through legal control and public coercion, but a practical one, aimed not at diminishing the transaction costs in a trade context, but at creating interpersonal trust between partners whose association went far beyond the strict economic sphere.
**TH1-24 Abstract 06**

**Metal ingots as a medium of exchange in the Bronze Age and the Iron Age**

Author: PhD Grzegorz, Tomasz, Wroclaw University, Wroclaw, Poland (Presenting author)

Keywords: medium of exchange, metal ingots, trade

Presentation Preference: Oral

Metal ingots constituted a long-lasting phenomenon that occurred from the beginning of the Bronze Age to the late Middle Ages. They appeared at the earliest in the Sitchina culture in Central Europe. Specimens made of bronze are rib-shaped, while gold ones were made of spiral wire. In the era of the Urnfield complex, longitudinal ingots of bronze and tin appeared. Sometimes they had regular and regular crease configurations which facilitated their breaking. They were often found in contexts associated with metalurgy. In the Hallstatt period, objects of this type made from iron appeared. In the La Tène period, ingots of gold, silver or bronze, often broken, have been found together with chopped coins. Analogous finds date from the Roman period, the Migration period and the Middle Ages. From that time, spiral wound ingots and coins of iron are also known. Silver ingots were also used in the 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 an important tool. Their form facilitated their breaking up to smaller pieces in order to achieve the proper weight. This method of their use facilitated relationships with communities using different weight measurement systems. They were also necessary, even if coins were available, in areas where political power was not able to guarantee and enforce their value.

**TH1-24 Abstract 07**

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

Author: Tobias, Benedikt, Institut für Archäologien, Universität Innsbruck, Innsbruck, Austria (Presenting author)

Keywords: Byzantine, glass weight

Presentation Preference: Oral

Byzantine glass weights are essential tools of a regulated and controlled coin circulation. To understand the financial management and ultimately the Byzantine tax system of the 6th and 7th century AD, their analysis is of great importance. They are made of glass of different colour. Delicate shades of dark blue and red or opaque brown glass occur. On the front side they are stamped with the bust of a dignitary surrounded by a legend including his title and name. The majority of the weights are stamped with the names of dignitaries in the form of monograms. For the first time 1300 Byzantine glass weights were systematically collected from various public and private collections in a database. About the half of these weights were studied and measured by the author himself to achieve reliable data. The typology of the 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, Vratska Akademichche Exposition Ltd., Moscow, Russian Federation (Presenting author)

Keywords: EAA2010, 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 clap, which was a truncated pyramid. The usual method of archaeological search for analogies, is comparative benchmarking, yet 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 Volga Bulgaria by Alexander Spitsyn. It is an object against a fastener ring and a size two times greater than it. Therefore the search for the source of a head, which said Ture Arne even have continued in Iran and the African side. Finding head of the Hungarian antiquities 9-10 centuries suggests that the rings of the Permian such as appeared in the area between the Vyatka and Kama in the ancient homeland Udmurt-Finno-Permian culture as synthetic (cultural) genes. But they began to fall out in hoards with the Arab coins first on Gotland, and then Southern Sweden and Denmark and it 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, Moscow, 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) a tree with two birds. These cylinders are hollow 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 (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, Università degli Studi di Padova, Padova, Italy (Presenting author)

Keywords: Aquileia, Roman, Weights’, 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 a meaningful proof of the important economic role in the Roman social life. Aquileia was surely a transit harbor of Aquileia was 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 Crossa property in Aquileia, carried out by the Cultural Heritage Department 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? In order to retrace the identity of the Roman weights’ users it would mean to find out the role fulfilled by them inside the ancient society of Aquileia: were they magistrates sent by the authority or private citizens? Hence, Roman weights may provide important valuable insights into the typologies of the measuring control system carried out in the city during the Roman period.
TH1-24 Abstract 11
Analysis of weights and measures from the flat axes mould discovered in Pendia’s Hillfort (Spain)

Author: Dr. Rodriguez del Cueto, Fernando, Universidad de Oviedo, Oviedo, Spain (Presenting author)

Keywords: Bronze Age, Hillforts, Weights and measures

Presentation Preference - Poster

In 2008 a flat axes mould was discovered in one of the streets of Pendia’s Hillfort, a fortified enclosure in NW of Iberia (IV BC-II AD).

The mould had a small pit to serve as a handle, a rounded bottom and a rectangular opening to pour the molten metal. This workpiece was made by a single blow of the forging hammer, with a small area for gripping the handles, a depression in the middle and a specific shape at the bottom, probably for pouring the molten metal. The mould was made of a single piece, which is a characteristic of this technique.

TH1-24 Abstract 12
Scales and Weights in Roman Trade: The Case of the Wreck Found in Valle Pega (Comacchio, Italy)

Author: Dr. Corti, Carla, University of Verona, Campogalliano, Italy (Presenting author)

Keywords: Roman trade, scales and weights, weighing procedures

Presentation Preference - Poster

In 1981 in the delta of the Po river, in Valle Ponti near Comacchio, was found one the wreck of a Roman ship with its cargo. The boat was engaged in small scale coastal shipping, but it was able also to transport by river. The shipwreck occurred around 12 BC along the north-western Adriatic coast, between two branches of the ancient Po.

The ship’s cargo excavated by archaeologists includes a big variety of merchandise: lead ingots, some with the stamp of Agrippa, amphorae and ceramics of various type and provenance, lamps, wooden beams, fourths of meat and various small objects, including several little lead temples.

A turn-over steelyard for retail trade and a big stone weight are also found in the cargo. They were part of the ship’s equipment.

The finding of these measuring instruments on the Valle Ponti’s wreck provides an opportunity for some remarks about the use and importance of weights in the Roman trade.

TH1-25 Abstract 01
How do we understand animal deposits from the Roman Iron Age in the wetlands in Denmark?

Author: PhD student Pantmønt, Pernille, 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 Denmark animal deposits tend to be overlooked compared to other finds from the wetlands, which includes precious metal objects, bog bodies and weapons etc. In contrast, our neighboring countries traditionally prioritize animal deposits a little higher. However, there is still a tendency to look upon animal deposits from a zoological point of view. In order fully to understand all aspects of the Iron Age utility of the wetlands, we have to reexamine the animal deposits and discuss their part in sacred and profane lifecycle 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 archæological 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 Sætpetermoisen have revealed a small bog with numerous sacred animal deposits. Though still preliminary, a vast amount of results seem to be the outcome, which will enable us to interpret both the new finds as well as reinterpret some of the old finds from northern Zealand. So far, the new discoveries can contribute with information about the variation of sacrificed animals, which parts that were sacrificed, the combination with other items, the context in which they were sacrificed and the differences compared to the profane animal deposits etc.

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

TH1-25 Abstract 02
Bokaren- a bog revisited

Author: Ekund, Susanna, BA, Uppsala, Sweden (Presenting author)

Keywords: Bog body, Ritual practices

Presentation Preference - Oral

Bog bodies have a special attraction and some of these, such as the Tollund man has reached iconic status. However, not all bodies from bogs are preserved similarly and not all remains from bogs are from humans, there are also bones from animals. This session welcome papers that focus on the practices around deposition, retrieval and curating of these remains. The session would address issues about bog bodies in human/animal relations, necropolitics and self-sacrifice, links between archaeology and written sources/ftikology as well as ethics of display and present day religion. To what extent would the bog body debate be stimulated by a gender, multispecies and environmental humanities perspective that explores human, non-human relations with watery environments? Can we move on in the discussion on depositions in wetlands being garbage or the holiest of holy? The session would like to invite researcher that adress the theories or lack (?) of theory in bog body studies. The session would also like to adress the geographical bias in bog body studies and broaden up, particularly with studies from Eastern Europe and if possible with studies of depositions of bodies in wet context from central europe and the alpine region.
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 with a wooden platform covered with flux. Unfortunately this quite spectacular find were forgotten about and the report never written up. It’s only been referred to in some texts. We have now been able to re-collect most of the material from the excavation that was spread out at different museum storages and we have studied the documentation. We have also dated some the human skulls and some of the animal’s bones and performed osteological analysis of the human skulls. Last year we got the chance to return to the place for a small scale research excavation to see how the finds had been preserved and trying to find out how big the actual site was. We found another human being and two horse skulls together with worked wood. The site appears to be quite big, and there is more the 35 meters between the findings of horse skull and human bones and we were not able to find the boundaries of the site. The ritual practices spreads out for a about 1000 years from 300 AD until 1300 AD, which is quite remarkable since it means well into the Swedish middle ages and Christian period. It’s interesting that both the humans and the animals have been exposed to similar types of violence on this site, and this might be one of the clues in how to interpret the mysterious bog bodies. Lake Bokaren is placed near double parish boundaries, between Rasbo and Stavby parishes. This can be interpreted as if this was a place where various localities got together around sacrifice. It’s also challenging to try and put the place in perspective in connection to folklore and oral traditions in the neighborhood. For instance many holy springs are known in the area.

TH1-25 Abstract 03
Place-lore concerning bog bodies and a bog body concerning place-lore
Author - Karna, Pine, University of Tartu, Tartu, Estonia (Presenting author)
Presentation Preference - Oral

...Under the swamp sods and when chopping down shrubs, many human bones came out from Lawinoo ’encampment swamp’. Also pigs dug out human bones with rusted pieces of iron. It seems that fighting had been so fierce that there was not enough time to bury the dead, so they were trampled into the swamp [...]. (E 63001/2)

The aim of this paper is to introduce Estonian place-lore concerning bog bodies. This oral history is collected and written down mostly in the past, but some narratives are vital among locals also nowadays. There are different stories that describe burials, 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 female body is reflected in place-lore. How information in place-lore is comparable with archaeological data and how this folklore should be received by archaeologists, will be discussed.

TH1-25 Abstract 04
Sacrifice and necropolitics
Author - Associate Prof. Christina, Fredengren, Stockholm, Sweden (Presenting author)
Keywords: Bog bodies, Necropolitics, Sacrifice
Presentation Preference - Oral

This paper will analyse mechanisms of inclusion and exclusion in Late Bronze Age and Iron Age Scandinavia (with case studies mainly from Sweden) manifested in the deposition of human and non-human remains in places outside burial grounds such as in wells, rivers, wetlands and bogs, traditionally seen as sacrifices. Problematising the concept of sacrifice, this paper will deal with the question of bio-politics insofar that it will look at what lives these individuals led as reflected in the skeletal remains. It also particularly deals with questions about Necropolitics and the control of the boundary between life and death and the effects of such control on societies, but also reflect on Zoe-politics as a historical phenomena (cf. Agamben 1998, Mbembe 2003, Bräutigam 2013).

TH1-25 Abstract 05
Peat Pits practical or ritual constructions
Author - Magister (M.A.) Wåhlin, Sidsel, Vendsyssel Historiske Museum, Hjørring, Denmark (Presenting author)
Keywords: Bog sacrifice, Iron Age, 1. cen. AD, ritual practice
Presentation Preference - Oral

In the sacrificial bog of Svennum (Vendsyssel, Denmark) six sculls were deposited in a group of 13 small peat pits (2013 excavation). The deposited is dated by ceramics to the first century AD. In the pits were also deposited stones, ceramics animal bones and white stones placed meticulously as querns and rows in one practical way. In 2015 the bog was further excavated and here it became clear that pits was not the most common way of extracting peat from the bog, large scale vertical stripping of peat was by far the norm this stripping is also dated to the Iron Age by ceramics. New deposits of animal bones, stones and wooden objects came to light, the deposits were different in form than the ones excavated in 2013, some were very organized some more random in character. A survey of older finds of bog deposited sculls in Vendsyssel suggest that they also were found in small peat pits. In Denmark it is generally held that Iron Age peat digging is always conducted in form of small pits but Svennum clearly shows that this is not the case. Most cases of Iron Age peat digging are registered because deposits come to light and are found to be seltn pits. The question raised is are the pits actually dug for practical reasons or are they in fact in themselves a result of ritual practice. The very elaborate placement of stones at the bottom of the pits before any new peat growth and the alternative form of peat extraction could suggest this.

TH1-25 Abstract 06
'Well-preserved' human remains – cultural paradigms on conservation
Author - Dr. Giles, Melanie, The University of Manchester, Manchester, United Kingdom (Presenting author)
Presentation Preference - Oral

This paper explores the marvelous accident of natural preservation which characterizes bog bodies, and the deliberate conservation choices which then determine their future ‘life’ as well-preserved corpses. It critically examines the different paradigms which have governed cultural choices over whether to re-bury, curate or conserve bog bodies, from the 17th-21st centuries within UK and Ireland. It will contrast both changing attitudes to the body, with developing ideals on conservation philosophy during this time. By contrasting these case studies with wider examples from northern Europe, it will show how they can be a lens through which we examine societal attitudes to bodies that confound our expectations of corporal decay. The paper hopes to share current ideas about 'best practice', pointing to the vital relationship between curator and conservator, in terms of the long-term future of such internationally significant remains.
The ambition is to create a synthesis about life biographies of artefacts from the Stone Age via practices and activities that the material culture reflects.

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.

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 Hambledon Hill (Dorset) and Windmill Hill (Wiltshire); for southern Scandinavia, Sarup (Denmark). Results from the use-wear analysis offer a way of characterizing activities at these sites that has not been attempted before. In particular, use-wear analysis has been able to reveal some of the encapsulated life histories that the flint artefacts hold, and in this way contributes to understanding the temporality in depositional practices at causewayed enclosures. The project has also sought to develop method in use-wear analysis, notably through the use of high-end digital microscope technology in combination with a conventional microscope.

From the living to the dead. Lithic artefact deposits in TRB burials in Jutland

Author - Czindlowska, Marzena, Aarhus University, Wroclaw, Poland (Presenting author)
Keywords: Burial, lithics, TRB
Presentation Preference - Oral

From the Megalithic period onward, sometimes even up to the Iron Age, lithics are frequently found in funerary context. Evidence of ritual use of flint is known from Neolithic settlements, enclosures, ritual houses and graves. Several traditions of treatment and handling of flint such as ritual destruction, burning or scratching the surface of the artefacts were recognized. In this paper, special emphasis is placed on possible role and meaning of lithics in TRB burial ceremony rituals. Artefact analyses were divided in two major parts. First, the technology of production and the possible traces of use found on flakes, blades and tools were discussed. The second part consisted of statistical analysis of lithic artefact type variation and their possible relation to other grave goods. The results were then compared to the ones obtained from material from TRB settlements. This leads to the general discussion about the interpretation of role and meaning of flint in the burial context. By using such combination of methods, it is possible to discuss different reasons for placement of lithics in the burial context. Various artefacts could be interpreted either as a part of the grave goods set (accessories for further life in afterworld), the belongings of the deceased (which could signify his status or occupation during life) or traces of ritual knapping or other activities during the burial ceremony.

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. Hensley, 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 adorn the walls of their chambers, passages and sometimes their external features. While most of that art was primarily created to be seen within the fixed setting of the monuments, excavations and studies in Iberia, France and Ireland have shown that a surprising percentage of this art was hidden in inaccessible parts of the architecture, or was erased from the walls, and that many decorated stones were broken and reworked before being re-employed as the structural components of new monuments. This raises at least two important questions: what was the earliest history of the decorated stones before they were placed inside the monuments? And, what was the role, if any, of such ‘un-displayed’ art in their final monumental contexts?
AN INTERPRETING THE ARCHAEOLOGICAL RECORD

Despite the descending importance of lithic industry at the end of Eneolithic, highly attractive morphotypes – lithic arrowheads – arrowheads life cycle, Eneolithic/Early Bronze Age, practical vs symbolic - PhD Kanakova, Ludmila, Masaryk University - Faculty of Arts, Brno, Czech Republic (Presenting author)

We may suppose that analyzed assemblage consists of a set of elements that were used and played different roles in everyday life, and later became part of the religious area. We are interested in the question of the life-cycle of objects in this context. This contribution will analyze the life cycle of lithic artefact as a model to understand their use in the Eneolithic society.

This paper will present the results of new recording and analysis of the decorated stones from Milin Bay. Using photographic techniques and 3D structure from motion photogrammetry, we examine technical signatures in the making of the art as well as overlapping art indicating sequences of art production, together with evidence of intentional breakage and other alterations of the stones. This examination allows us to infer the multiple stages and ‘chains of practices’ involved in the production, use and reuse of the Milin Bay stones as ritual artefacts.

Here we approach megalithic art as not as a spatially and temporarily fixed assemblage of structural stones but as a series of individual artefacts that were moved, transformed, decorated, reworked, sometimes broken, and eventually brought together and reused as structural elements to create the architectural setting of the monument. The Jordanów Group, considered as a late phase of Lengyel-Polgar complex in the upper and middle Odra river basin, was excavated in the early 1950s, revealing an unusual long cist-like structure containing 16 burials and 64 stones with decoration associated with the Irish megalithic art tradition, which regularly features abstract carved motifs (concentric circles, spirals, meandering lines, etc.). Several of these stones display evidence of intentional breakage, as well as several episodes of art-making including superimposition, suggesting that the decorated stones had a complex biography before subsequent use in the buried architecture of the tomb. What happened to these stones before they were eventually deposited underground and used as structural components in the monument?

This paper will consider Milin Bay in its broader context, with reference to wider evidence of reworked and placed megalithic art in Ireland and Europe, and will discuss the reuse of megalithic art as representing a specialised form of prehistoric monumental construction. Theoretical ritual.

TH1-26 Abstract 06

**Between the profane and sacred. Endless life of tools and vessels**

**Author** - Dr. Kufel-Dziakowska, Bernadeta, Wrocław University, Wrocław, Poland (Presenting author)

**Keywords:** Eneolithic, grave goods, use wear and GC-MS

**Presentation Preference**: Oral

This contribution presents the biographies of the artefacts found in funerary contexts. We chose archaeological material retrieved from the early 1970s from the Domasław site near Bydgoszcz excavated in 1970–1972, SW Poland. The site was excavated by the Polish Academy of Sciences.

The Jordanów Group, considered as a late phase of Lengyel-Polgar complex in the upper and middle Odra river basin, was represented by 24 graves. Male and female graves were equipped - in many cases very wealthy - with vessels, copper and shell jewelry, copper tools, antler axes and flint retouched tools and blades. It is believed that at least some of these artefacts were made especially for the ceremony. However, many types of objects placed there, such as antler or stone tools, are often found in settlement structures as well. In respect to the position of the artefacts within the burial pits we may suppose that those grave gifts were intended to express someone’s personal equipment or were exactly personal equipment. Use wear analysis of flint artefacts from Domasław show that tools were intensively used for different, but limited purposes. Chromatographic analysis of ceramic vessels found in these graves indicate that different forms of vessels were used for storing and preparing particular vegetal or animal products and their contents precisely correspond with their use.

We assume that the grave goods deposited together with the deceased were not expected to be reused. They were expected 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-term. 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 together with the deceased.

**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 showed me that, in spite of the traditional view that most objects were especially created for the event of the burial, 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 axacizachowie, 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 figurines or objects that are poorly manufactured, indicating that their use might have been deemed from the start to be very short-term. 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 together with the deceased.

**TH1-26 Abstract 09**

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

**Author** - MA (Mg) Kniemer-Gubala, Katarzyna, Institute of Archaeology and Ethnology Polish Academy of Science, Warsaw, Poland (Presenting author)

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**Keywords:** grave, megalith, stones

**Presentation Preference**: Oral

Stones were used by prehistoric societies in everyday activities, such as preparing 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 Amfora Culture in Poland, the role of stone as a building material for grave construction was significant. In this time numerous objects covered with the stones or with stone floors, as well as with a grave goods are known. The Wilczycze site is located in southern part of Poland, in the Sandmierz Upland. The site is well known from earlier publications of megalithic (magalithic) settlement, but it concerns also traces of neolithic occupation, connected with Globular Amfora 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 sand soil platform on the perimeter of grave pit. In the vicinity there were also...
The role of chipped stone artefacts in the Late Neolithic burial practice at Alsónyék (Hungary)

Author: Saigyi, Kata, Eötvös Loránd University, Budapest, Hungary (Presenting author)

Keywords: Capped stone tools, Late Neolithic, Lengyel culture

Presentation Preference: Oral

The Late Neolithic Alsónyék-Bgázsak site has enormous extension, which reflects in large amount of stone tools (nearly 8000 pieces of stone tools). This site’s chipped stone assemblage contains many long-distance import stone tools (e.g., large-size volhynian flint blades which were removed by indirect percussion). The enormous extension of this site and structurally constructed of the settlement and a lot of burials; these factors which can recon the intensive intercultural connections of the Northwest-Transdanubian group of the Late Neolithic Lengyel culture. This hypothesis is not reflected from the settlement’s chipped stone tools, in contrast to the stone tools from burials. These shows the raw material’s manipulation role inside the site. Based on these, we find the everyday’s ingredients tools (e.g.: blade, end-scraper on blade and end-scraper on flake) form local and regional raw materials. The long-distance raw materials made import tools from burials means the ritual sphere’s artefacts.

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

Author: PhD Henrikсен, Marete, Norwegian University of Science and Technology, Trondheim, Norway (Presenting author)

Keywords: depictions, biographies, amber, antler, Norway, ornaments, late Neolithic

Presentation Preference: Oral

In the coastal region of north-western Norway, pendants of amber constitute a characteristic element amongst the many objects deposited mainly in bogs in the late Neolithic (c. 2350-1700 BC). The pendants are of different shapes and sizes. Of particular interest are the crescent-shaped pendants that originally formed part of larger composite ornaments. These ornaments are also found in antler in the same area. This group of ornaments stand out from the other pendants of amber in terms of shape, but also by having been created and used as composite ornaments from the outset. Whether manufactured locally or imported as finished products, the amber itself had to be imported, suggesting these ornaments were highly valued items, used for expressing both social status and identity.

Belonging to a rich and varied group of depictions from the late Neolithic and early Bronze Age in Norway, the crescent-shaped ornaments have been interpreted as votive offerings. However, this hypothesis does not necessarily provide the best tool for understanding the ornaments and their deposition. In the present study of the ornaments in both amber and antler, a biographical approach is applied, focusing on the relations tied to the objects during their life-course. Against this backdrop, an alternative view of the ornaments, their role in society and the final deposition is presented.

A biographical analysis of Mesolithic hoarding in South Scandinavia

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Keywords: hoarding, Mesolithic, ritual

Presentation Preference: Oral

Hoarding has often been characterised as a ritualised post-Mesolithic phenomenon, but when similar Mesolithic deposits are identified they are often considered ‘unique events’ and as profane caches of raw material. These Mesolithic hoards, which are often carefully arranged or bundled, contain a wide range of objects, from blades, cores and debris, to axes, beads and unusually large or unique objects. Preliminary results from this study indicate that some of the objects appear to have been produced immediately prior to deposition, whilst others appear to be well-used, and even burnt or broken. All too often hoards are just considered as an isolated event of deposition, instead of the final stage in a chain of practices that led to the act of deposition of particular objects. Without understanding the pre-depositional life history of the objects in these deposits we severely limit our interpretation of the deposits themselves, the possible pre-depositional ritualised practices that culminated in these hoards and why specific objects were deposited in this manner.

This paper seeks to address the following questions: Are there any large-scale patterns or are they all idiosyncratic and isolated events? Do these deposits represent profane caches, ritualised hoards, neither or a mix? What, if any, relationship is there between the pre-depositional life history of the objects and the mode of deposition? By understanding the biography of these objects and practices we may further our understanding of both Mesolithic ritualised practices as well as the longue durée of hoarding practices in Southern Scandinavia.
TH1-26 Abstract 15

Color Symbolism and its Reflection in Prehistory of Latvia

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Keywords - color, red, ochre, symbolism

Presentation Preference - Poster

There are many ways how to approach the study of history - archaeological evidences in excavation sites, dating methods, pollen analysis as well as stratigraphy of geological layers, DNA sequencing techniques for tracing migration roots, admixture analysis etc., to capture in a frame of reference physical evidences of early humans and their past. By studying physical evidence, we see close links to psychological, social and behavioral traits, as well as development of societies, evolutionary perspectives of human mind and material culture. Harder to approach are the development of linguistic capacities, cultural activities as dance and religious beliefs - cosmology and symbolism, primarily - color symbolism through prehistory. Stone Age cemetery Zvejnieki (8.-5. BCE) is closely associated with the usage of ochre and processed minerals - like red ochre in burial grounds. As well as evidence for white circle structures, that point to ritualistic symbolism. Thus, the physical evidence here reflects on mental phenomena linked to early mystical and religious rituals.

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: the use were there are naturally occurring ochre sites 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 (golith). 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).

Further, various tests were carried out corresponding to the chemical composition analysis. It can help to provide a valuable insight into such fine aspects of prehistory culture as symbolism.

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 reconsiders letters specifically as material gifts and, through reference to the theories of Mauss, Bell, Rockroge-Halton and Csikszentmihalyi, explores how their essentially handmade nature affected the creation of personal meaning and sentimental value.

The approaches taken to private letters in this paper allow these documents to be viewed once again as whole objects, reuniting texts with material form to provide a more rounded view of such sources. It allows focus to shift from elite and prestigious possessions that usually 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 the medieval period.
TH1-27 Abstract 02
Are Merovingian brooches inalienable personal possessions?
Author: M.-A. Sorg, Marion, Albert-Ludwigs-Universität Freiburg / Institut für Archäologische Wissenschaften, Freiburg im Breisgau, Germany (Presenting author)
Keywords: Inalienable personal possessions, Merovingian brooches, Wear marks
Presentation Preference: Oral

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

TH1-27 Abstract 04
How much is that necklace in the coffin?
Grave wealth and grave robbery in early medieval Europe
Author: Dr. Klevås, Alison, Stockholm University, Stockholm, Sweden (Presenting author)
Keywords: Artifacts, Burial, Early medieval
Presentation Preference: Oral

TH1-27 Abstract 05
'Cheap' bone things, games and travel – on the value of gaming-pieces in an early medieval grave
Author: Zint, Stephanie, Bayerisches Landesamt für Denkmalpflege, Thierhaupten, Germany (Presenting author)
Presentation Preference: Oral

TH1-27 Abstract 06
"Amulets" in Anglo-Saxon graves
Author: Dr. Hills, Catherine, University of Cambridge, Cambridge, United Kingdom (Presenting author)
Keywords: Amulets, Anglo-Saxon, Burial
Presentation Preference: Oral

Presentation Preference: Oral
Grave robbery – a practice of reopening recent burials and taking objects from them – was widespread across early medieval Europe, peaking in the seventh century. Affected graves have been recorded in hundreds of cemeteries from eastern Austria to southern England. Their disorder and depletion contrasts dramatically with the carefully laid out and often lavishy furnished burial displays of the period. Many explanations have been put forward for the reopening practice, but common interpretations are that high-value artefacts or high-value reusable materials were being recovered from graves. This paper looks in detail at how objects in particular were taken from graves, using results from recent research (reopenedgraves.eu). It shows that only a limited range of artefact types were taken, but that the selection was not based on raw materials or use value.

Many apparently highly valuable objects were deliberately left behind. What lies behind the selection? It will be suggested that the line 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 commodity 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 06
"Amulets" in Anglo-Saxon graves
Author: Dr. Hills, Catherine, University of Cambridge, Cambridge, United Kingdom (Presenting author)
Keywords: Amulets, Anglo-Saxon, Burial
Presentation Preference: Oral

Anglo-Saxon women’s graves of 5th-7th century sometimes include items which have been described and discussed as “amulets”, by Audrey Meaney (1981) and others. These are not functional dress fasteners or ornaments, although they may include broken brooches, belt fittings or horse harnesses. There are also fragments of glass, pieces of Roman lead 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 Földe (2014) to be associated with girdle-hangers, and interpreted as indications of the special status of the women who wore them: not straightforwardly social or wealth status, but relating to the role these women played possibly in connection with birth and death. This paper will look at some of these items to
see how their significance and use change 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?

Feld, X. 2014 Girdle-hangers in 5th and 8th century England. A Key to Early Anglo-Saxon Identities. Unpub PhD University of Cambridge

Meany, A. 1981 Anglo-Saxon amulets and curing stones British Archaeological Reports 98

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**TH1-27 Abstract 07**

Value-added gold: The physical, social, and cultural re-purposing of Scandinavian bracteates

**Author** - Prof. Wicker, Nancy, University of Mississippi, Oxford, MS, United States of America (Presenting author)

**Presentation Preference** - Oral

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

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**TH1-27 Abstract 08**

The things with value. An ontological investigation

**Author** - Van Viel, Krista, Stockholms Universitet, Värmö, Sweden (Presenting author)

**Keywords**: ontology, value

**Presentation Preference** - Oral

While ideas about the various and unstable meanings of value and possession as well as their situatedness have gained considerable interest within archaeology, the ontological statuses of these notions remain largely unexplored. This is problematic, for the reason that it leaves us in the dark about what we are actually talking about and, even more important, it keeps presumptions and beliefs about the nature of the world equivocal. Inspired by Deleuze, Guattari, and DeLanda, but also by Lucas, Fowler and Normark, I propose to investigate ‘value’ and ‘possession’ not as references to other abstractions, but as concepts and as such as entities that are active parts of the archaeological record. Being entities themselves, they are connected to and interact with other entities within and outside the archaeological record (e.g. books, brochures, archaeologists, ideas, animals, pots, voices). Challenging the idea of the preeminence of human intention, I argue, that it is these relations and interactions that continuously define and redefine ‘value’ and ‘possession’.

Consequently, objects are not passive receivers or holders of worth either, nor are they indifferently imbued with ideas of value or meaning, but are (re)defined by the interactions they establish with other entities that may or may not include notions of value or possession.

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**TH1-27 Abstract 09**

Unraveling Value: Cultural Transmission Value-based Constraints among Blackfoot Ceremonial Bundles

**Author** - Walsh, Matthew, Aarhus University, Aarhus, Denmark (Presenting author)

**Keywords**: Blackfoot, Ceremonial Bundles, Cultural Transmission

**Presentation Preference** - Oral

Archaeologists are increasingly focused on understanding the implications of social learning on the development of material culture. Such studies look to establish the roles of social learning, individual choice, and information transmission within cultural contexts. This study examines the contents of Blackfoot ceremonial bundles to investigate whether heritable continuity is evident in their assembly, allowing for inferences regarding social learning, cultural transmission, and transmission bias among proto-contact Blackfoot 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 contexts and their distribution in various bundle types as indicators of socially-prescribed and maintained traditions. As such, we hypothesise that rules prescribing a communal value to specific bundle contexts 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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**TH1-27 Abstract 10**

My worthless precious. 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 value of the artifact could prove to be a difficult endeavor even if items come from societies with abundance of coinage systems like ancient Greece. This is true specially for manufactured goods, and specially for Greek painted pottery. The peculiar combination of different stages of consumption of the object, added trade value, and the low cost of raw materials, all this factors are adding to constantly relabel 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 metal art to being a prestigious item and luxurious commodity, to present views of just two extreme ends of the discourse. Furthermore, given the fact that Greek vases could be found all over Mediterranean their value would change accordingly. Indeed, their trade value is also being assessed with conclusions varying from one which states that vases served 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 obscures proper understanding and placing of object within Greek culture, but it also changes the grounds for interpreting the iconographical massage conveyed in the pot. Greek painted pottery consists of enormous cluster of scenes, ranging in hundreds of thousands which are used for studies of the ancient society. The value of the item is often pivotal as it represents the social class for which these objects were made and by which they were consumed and it allows to connect certain ideology with particular set of scenes.

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**TH1-27 Abstract 11**

Materializing worth and value in archaeological beads

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**Co-authors** - Dr. Bayal, Emna, Trakya University, Edirne, Turkey

**Keywords**: Beads, Interpretation, Neolithic Anatolia

**Presentation Preference** - Oral

Despite moves in recent decades for archaeology to look beyond ‘form’ and ‘function’ for more 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. Justa, Garson H., University Bremen, Bremen, Germany (Presenting author)
Keywords: different knowledge and social environments, globalisation and global interacing, perception of Asia in medieval Europe
Presentation Preference - Oral
For a long time the historical and archaeological research accepted the conception that items from Asia which reached the medieval Europe were solely assigned to lordly circles. The reason for this assumption was the focus of outstanding and curious collector’s items in the lordly treasuries and cabinets of wonder. However the archaeological research of the last decades in the whole of Europe added numerous of finds in different social environments. My contribution to the congress introduces these items and categories of objects inside their social contexts. With the increase of archaeological excavations the rate of finds continues to rise. That’s why our conception from a perception of the eastern continent in the west changes.

TH1-27 Abstract 13
Striking Objects: Comparing the metal used for Roman copper-alloy coinage and domestic artefacts
Author - Dr. Peter, Bray, University of Oxford, Ruislip, United Kingdom (Presenting author)
Keywords: Chemical analysis, Roman Coins, Value
Presentation Preference - Oral
Roman coinage sits at the intersection of a remarkable number of research projects. The art history and iconography of the images stamped on the coins, and the detailed chronology they can create are both full-time specialisms. Coins are used in detailed models of economy, trade, and exchange far beyond the geographical limits of the Empire. As a researcher who spends much of his time studying Bronze Age metallurgy, Roman coins are an astonishing opportunity for examining pellets of copper-alloy that are often stamped with a date, place, and value.

Due to the richness of the data immediately associated with the coins, it is sometimes hard to consider them within the broader context of Roman metal use. This paper highlights new approaches to synthesising and characterising the large corpus of chemical data taken from Roman coins over the last two hundred years. These approaches emphasise the flow of metal and ideas, and the negotiated creation of value and identity. The contemporary domestic metal assemblage has been interpreted using the same methods, which reveals close links between the Imperial control of mints and the wider availability of metal. This work aims to contribute to the broader debate on the creation of economic and social value, as well as discuss the changing prevalence of recycling and debasement.

TH1-27 Abstract 14
Moulding meanings. Late Bronze Age valuables through the organisation of metalworking
Author - PhD student Sörman, Anna, Stockholm University, Stockholm, Sweden (Presenting author)
Keywords: Craft organisation, Late Bronze Age, Prestige goods
Presentation Preference - Oral
Metalfwork 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 milieu. This reflects a common notion where exclusive objects are assumed to gain their value in exclusive settings and through exclusive skills. However, tracing the production contexts of prestige goods in the archaeological record shows that the manufacturing of these valuables was staged in many different ways, none of which seem to reflect exclusive and exotic workshops sites. Looking closer at the organisation of production of valuable craft objects shows that crafting events were staged in many different arenas. In this paper I will discuss how the organisation of metalworking can illuminate the creation of power and value of prestigious possessions of Late Bronze Age Scandinavia beyond the assumption of exclusive workshops for exclusive values. I will discuss how (1) the context and staging of production, (2) the intended bearer of the object, and (3) the citation to other objects all worked as important ingredients in the act of producing powerful possessions.
TH1-27 Abstract 17

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

Author - PhD Student Ruhi, Erika, SUNY at Buffalo, Buffalo, NY, United States of America (Presenting author)
Co-author(s) - Lipkin, Siana, University of Oulu, Oulu, Finland

Keywords: secondary use, textiles, value

Presentation Preference - Oral

The patterns of domestic pottery consumption progressively changed over the Middle Ages in the Basque Country. Although some 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 15-19th Centuries they have barely any points in common. One of the implications of this process is the change of value of the productions prevailing in the light of the inquisition of new products, generating a progressive latent transvaluation in the ceramic record. Thus, the new also constantly determined the value of the old.

With this paper, we wish to characterise the transformation of the ceramic record between the 7th and 15th Centuries, understood as a response to a material order established. Among the factors that generated the dis-equilibrium of this order and its renegotiation, we will analyse some of the characteristics of the production networks as agents of change in demand, more and more directed at new ceramic products with greater sensorial capacity. The introduction of glazed, painted pottery to the tables of the aristocracy set a new sensory aesthetic that ended up transforming the local productive horizon. An interpretative model would emerge from these considerations that explain the progressive changes to the Basque ceramic record over the Middle Ages as a chained process. First new products were imported that changed consumption patterns and then technological innovation processes were initiated that resulted in their taking root on a regional scale.

When it comes to understanding the reasons that justify this process of transvaluation of the ceramic record, we will explore the potential of the communicative value of pottery in its social context of use as a key explanatory factor. For this purpose, we will evaluate the role of pottery in the non-verbal processes of communication and its suitability in the social construct strategies of inequality. Lastly, we will evaluate up to what point the dialectic 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.

TH1-27 Abstract 18

Valuable pots made with cheap clay.

A biographical approach of the pottery from Sultana-Malu Rosu

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Keywords: bioarchaeology, pottery

Presentation Preference - Oral

The Neolithic site of Sultana-Malu Rosu (Romania) is well known in the overall framework of the Gomelina-Kojadinan-Karanovo VI cultural complex (ca. 4500-3800 BC) due to the large amount of good quality pottery, among which some of the vessels are unique in terms of shape and decoration. These characteristics are the ones that assign value and special meaning for vessels according to both old and new interpretations. However, most of the pottery from this site is represented by common vessels and other thousands of sherds. Also, the site formation has its own identity with the final contexts of the pottery varying from crushed shards used as temper (grog) to whole vessels assembled in burnt houses or used in mortuary practices.

The aim of this paper is to examine certain stages of the biography of various types of pottery concerning their value both for individuals and the community. Our inferences will be mainly based on the analysis of pottery related to the archaeological record. The close inspection of pottery will include provenance studies based on archaeometric analyzes, identifying manufacture technologies, morphological and typological classification, wear-use analysis, and fragmentation patterns. This approach can establish certain pathways and changes in the vessels’ life, addressing various interpretations of the value and meaning of the objects at each stage of their existence.

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TH1-27 Abstract 19

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

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Presentation Preference - Oral

The patterns of domestic pottery consumption progressively changed over the Middle Ages in the Basque Country. Although some productions present since the 7th Century remained beyond the 15th Century, the ceramic record was completely transformed both quantitatively and qualitatively up to the point that the ceramic record of the 15-19th Centuries they have barely any points in common. One of the implications of this process is the change of value of the productions prevailing in the light of the inquisition of new products, generating a progressive latent transvaluation in the ceramic record. Thus, the new also constantly determined the value of the old.

With this paper, we wish to characterise the transformation of the ceramic record between the 7th and 15th Centuries, understood as a response to a material order established. Among the factors that generated the dis-equilibrium of this order and its renegotiation, we will analyse some of the characteristics of the production networks as agents of change in demand, more and more directed at new ceramic products with greater sensorial capacity. The introduction of glazed, painted pottery to the tables of the aristocracy set a new sensory aesthetic that ended up transforming the local productive horizon. An interpretative model would emerge from these considerations that explain the progressive changes to the Basque ceramic record over the Middle Ages as a chained process. First new products were imported that changed consumption patterns and then technological innovation processes were initiated that resulted in their taking root on a regional scale.

When it comes to understanding the reasons that justify this process of transvaluation of the ceramic record, we will explore the potential of the communicative value of pottery in its social context of use as a key explanatory factor. For this purpose, we will evaluate the role of pottery in the non-verbal processes of communication and its suitability in the social construct strategies of inequality. Lastly, we will evaluate up to what point the dialectic 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.

TH1-27 Abstract 20

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

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Keywords: Neolithic, Token/clay object, West Asia

Presentation Preference - Oral

The Neolithic period in West Asia (c. 10,500-6,000 cal. BC) saw the appearance of the world’s first permanent, farming villages. With this development came significant changes in social structure, subsistence activities and artistic expression as villagers experimented with, and adapted to this new way of life. An enigmatic feature of Neolithic societies is the appearance of small, geometric-shaped clay objects, or “tokens” as they are more commonly known. Clay objects occur in various shapes including spheres, discs and cones, measuring c.150-3.50cm. Initially appearing at a small number of sites in Anatolia, Upper Mesopotamia, the Zagros and the Levant from the start of the Neolithic period, by the Late Neolithic, clay objects are evident across the region, often found in hundreds when present at a site. Until recently, clay objects have been overlooked upon excavation, frequently ignored, or dismissed as children’s toys, naturally occurring lumps of clay or mere doodles. More recently Schmandt-Besserat (1992, 1996) has interpreted clay objects as mnemonic “tokens”, the precursors of cuneiform writing yet their cultural appearance and lack of a certain, easily assignable function has contributed to the continued neglect of this artefact type within Neolithic archaeology.

This paper stems from recently completed PhD research. An investigation of the nature, role and function of geometric clay objects within Neolithic West Asia, it demonstrates the difficulty in identifying, categorising and interpreting artefacts in pre-literate societies. Evidence comes from morphometric typological analysis, relational database investigation, and chariot and manufacture study, comprising almost 3,000 objects from 79 sites. Analysis suggests that in contradiction to the predominant interpretation of these objects as symbolic accounting “tokens”, part of a formal, enduring, region-wide system (Billicher-Besserat 1992, 1996), clay objects were multi-functional tools, fulfilling a variety of uses within and across Neolithic communities. The lack of clay object assemblage homogeneity within and across sites where they occur, along with the lack of a certain, singular and consistent function for these artefacts within the wide context of Neolithic West Asia, adds to the difficulty of artefact categorisation. Functional uncertainty leads to problems differentiating clay objects from other small artefacts made from clay, yet of a more certain categorisation (schematic figurines and tablets for example). Perceived value of archaeological finds is inextricably tied to their function, yet when a function, and even the classification of an artefact type is debated, our interpretation of an objects’ value within a past community is easily lost. Their large numbers when present, simple shape, crude appearance and depositional patterning proves “tokens” were quickly and easily made, and disposed of as readily. Yet, Neolithic clay objects were valued, multi-functional artefacts. Even within a single site, comparable objects likely performed multiple roles (e.g. counting tools, information storage mechanisms, gaming pieces, apotropaic devices). As tools, clay objects operated with fluidity of function, with imbued value and meaning; a quality which was appreciated and valued.
This paper will address diverse “regimes of value” which were brought together by the booming medieval trade along the Volga River during the 9th-10th centuries CE. The paper will focus on how value was attributed to different goods and objects in various cultural contexts, and how fungibility of goods was fluid among different trading communities. The latter included the nomads of the Khazar Empire, the Viking Rus, and a variety of local sedentary communities, who lived along the Volga River. While we possess some textual narratives about the Volga trade, its participants, their rituals, goods, and fungibilities, archaeology speaks louder than words in terms of the meaning of value in this trade. By looking primarily at the archaeological context of medieval burial practices, it is possible to see how new means (objects and goods) were put to old ends in the process of social exchange. Namely, how items such as coins, belt sets, and beads, were circulated among the specific communities, and then taken out of circulation in the process of ritual (burial) action—and in some instances, extracted again. The aim is to show how the politics of value developed during this period of trade and affected the participating communities. The problems connected with archaeological interpretation of these processes will also be addressed.

TH1-27 Abstract 22
Beads, Bells & Baubles: The indigenous Caribbean (re)valuation of Spanish trade goods (c. 1492-1550)

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

This paper juxtaposes archaeological and ethnohistorical sources to explore the early colonial indigenous Caribbean use and valuation of European-introduced goods acquired through systems of barter and gift-giving. Historical accounts written by European chroniclers describe the indigenous eagerness to obtain novel Spanish goods as well as the pace with which such articles were absorbed into indigenous networks. The cross-cultural exchange of exotic objects 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 understudied. In this paper, I will discuss early European-introduced materials which have always been an invaluable resource for studying the material dynamics of this encounter, archaeological evidence of the abovementioned processes has often been understudied.
The Isle of Man is a small island of just 580 square kilometres, yet it boasts the remains of about 200 medieval chapels (in Manx Gaelic, ‘keeills’). In the 1930s Carl Marstrander, the leading Celtic scholar of his day, visited the island to study its many Celtic cultural and linguistic facets. Marstrander was intrigued by the widespread distribution of early medieval burial grounds and chapels, which predate the establishment of a parish system on the island during the 12th century. He proposed and published a highly-influential thesis that the distribution of these chapels was associated with a pre-existing land division system which functioned throughout the island. Several theories have since been advanced which have suggested alternative explanations for the distribution of these chapels, and have been based, for instance, on concepts of peripheral or central location. It is worth taking stock of these, and of Marstrander’s work, in the light of recent discoveries and new dating evidence for some chapel sites, 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, offers an explanation for the 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.

THI-28 Abstract 03

A landscape of belief: Orkney’s medieval churches

Author - Dr. Gibson, Sarah Jane, University of the Highlands and Islands, Kirkwall, United Kingdom (Presenting author)
Keywords: church, landscape, Orkney
Presentation Preference – Oral

Over two hundred churches were founded in Orkney in the eleventh and twelfth centuries. This paper will explore the various functions of these churches by considering them in their landscape contexts as a means of overcoming the lack of contemporary written sources relating to them.

The churches can be grouped according to three different landscape settings: proprietary churches located in close proximity to central places within settlement units (townships); isolated churches located some distance from known settlements; and churches located on prominent sites elevated from settlement too 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.

THI-28 Abstract 04

Chapels, Church sites and Settlement in Medieval Faroe Islands

Author - Arge, Símun Vilhelm, Faroese National Heritage, Tórshavn, Faroe Islands (Presenting author)
Keywords: chapels, church sites, settlement
Presentation Preference - Oral

In the Faroes a group of sites has, because of their characteristics and associated placenames, been interpreted as medieval sites - maybe even remains representing the early Christianisation process. But because of the lack of church archaeological investigations our knowledge of the Faroese Medieval church is quite limited. The paper will discuss the characterisation of the archaeological material at hand based on an ongoing project involving surveys and investigations of possible church runs. In an attempt to understand these relics - their relation and function within the Medieval church in the Faroes - the paper will present the preliminary results of the project.

THI-28 Abstract 05

Novel topographical surveys and analysis of ecclesiastical sites in the Faroe Islands

Author - Michelsen, Helgi Dal, Faroese National Museum, Hoyvik, Faroe Islands (Presenting author)
Keywords: early churches, ecclesiastical landscape, North Atlantic
Presentation Preference - Oral

In the Faroe Islands there are ecclesiastical sites that by tradition or place name are associated with bannan (Faroese for chapel). The lack of historical and archaeological data has made questions regarding the date and function of these sites difficult to answer. Nevertheless they have been used e.g. in explaining when and by whom the Christianisation was introduced. Only one of the sites has partly been excavated in the 1960s, and only two other sites had been archaeologically surveyed before 2013. To get a better understanding of the variety of ecclesiastical sites the Faroese National Museum started a surveying project in 2013. The aim is to create a platform for future archaeological work and to create a basis of comparable archaeological data to use locally and across the North Atlantic region. The methods used in the project are a combination of topographical surveying, Georadar survey and archaeological test excavations. The topographic mapping is made by a combination of Structure from Motion (SFM) and Direct Surveying Methodologies (DSM). The collected data are analysed, visualised and compared in an ArcGIS environment. This paper will present the preliminary results of the project.

THI-28 Abstract 06

The geography of a cemetery – the early Christian cemeteries of Skagafjörður, North Iceland

Author - Zoega, Gudny, Skagafjörður Heritage Museum, Saudarkrokur, Iceland (Presenting author)
Keywords: burial customs, cemeteries, churches
Presentation Preference - Oral

In the last decades 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 AD1104. A small number ultimately evolved into parish or communal cemeteries and in some instances churches retained their function and boundary walls were rebuilt after the cemeteries were no longer being used for burial. In their outward appearance these cemeteries seem to have been remarkably similar in size and form suggesting that from the outset, they were being managed and structured according to a particular set of laws or customs. Burial customs that have been considered an 11th-12th century development, for instance sex segregation, also seem to have been in place right from the beginning of the 11th century. These cemeteries are adding a new dimension to our understanding of the early ecclesiastical landscape in Iceland and how and when important changes may have occurred. In this paper I will explore the differences and similarities that can be found in the layout and organisation of these cemeteries and how they compare with contemporary funerary data from outside Iceland.
TH1-28 Abstract 08
Communities of death in medieval Iceland

Author: Prof. Vésteinsson, Orn, University of Iceland, Reykjavik, Iceland (Presenting author)
Keywords: church, Iceland, Medieval
Presentation Preference: Oral

In Iceland, the introduction of Christianity around 1000 AD was associated with fundamental changes in burial customs. In pre-Christian times each farm had its own cemetery but under the new custom only about a half of the farms had churches with cemeteries. Farms without a church and cemetery are as a rule those of lower status and their occupants presumably buried their dead either in their neighbours' cemeteries or (if different) in the cemetery of their patrician 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.

TH1-28 Abstract 09
"Small churches" in Norse Greenland – what became of them?

Author: Dr. Arneborg, Jette, Danish National Museum, Copenhagen, Denmark (Presenting author)
Keywords: Churches and church-farms, Norse Greenland, reorganisation of ecclesiastical landscape
Presentation Preference: Oral

Greenland was settled in the later part of the 10th century when Christianity had been introduced in northern Europe. Christianity was a part of the settlers' kit, and churches and churchyards were built on the farms from the very beginning of settlement. The churches were built close to the farmhouses, and they were characterised by their "secular" architecture, small size, and a surrounding circular, or sub-circular, enclosure. During the 13th century the early churchyards were taken out of use, as were apparently the church buildings, and a number of farms lost their status as church farms. In the same period new and larger churches were built either on earlier church farms or on newly established ones, now adapting "traditional" church building architecture known in Scandinavia. Based on archaeological excavations of "small churches" 2001 – 2010 I will explore the changes in Norse Greenlandic church building in the context of ecclesiastical and community organisation.

TH1-28 Abstract 10
A World apart? Burial rites in a Scottish Carmelite Friary

Author: Hall, Derek, Stirling University, Perth, United Kingdom (Presenting author)
Keywords: Carmelites, leather shoes, wooden staff
Presentation Preference: Poster

Ongoing excavations of the site of the medieval Carmelite Friary of Tulliblum in Perth, Scotland in advance of its redevelopment have located at least 300 human burials in the friary church. The earliest group of these burials are consistently buried with wooden 'staffs' which are apparently not functional objects but symbolic and two of the other burials were found to be wearing leather footwear. This paper will consider the meaning and significance of these and other unusual burial rites from the site in comparison with other similar examples from England and Scandinavia.

TH1-29 Abstract 01
Rocking the Cradle of Scotland

Author: Prof. Driscoll, Stephen, University of Glasgow, Glasgow, United Kingdom (Presenting author)
Keywords: 3D animation, Excavation, Museum
Presentation Preference: Oral

The Cradle of Scotland was a museum exhibition generated by the 10-year long research project into the archaeology in the heart of Scotland, the Strathclyde 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 interpretative artists, from traditional archaeological illustrators to re-enactors and digital designers. This project 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 contributes a step in critical process leading to the final academic publication of the results of the study.
One way in which archaeology can reach back and experience some parts of ancient life is through attempts to reproduce former conditions and circumstances. By using reconstructions, visitors of archaeological open-air museum can experience what the meaning and importance of these objects was for their original creators and owners. Spread throughout Europe, there are about 300 archaeological open-air museums that have these kind of reconstructions forming their main collection.

This research will 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. The presentation in form of reconstruction can, moreover, convey a sense of realism, since not only sight but also other senses are triggered during a visit to a reconstruction.

An archaeological open-air museum is a permanent non-profit institution. This is characterized by outdoor true to scale architectural reconstructions and representations of how people lived and acted in the past. It holds collections of intangible heritage resources and provides an interpretation of how people lived and acted in the past. This is accomplished according to sound scientific methods for the purposes of education, study and enjoyment of its visitors. Visitors of the archaeological open-air museum get, because of that a specific view on the past, a very specific story told about the daily life of everyday people.

In this research creates a basic foundation for developing a new museological theory of archaeological reconstructions. The ultimate goal of this new theory is to improve the quality of the presentations of reconstructions in archaeological open-air museums, by creating a link between general museological theory and archaeological open-museums.

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6. Paardekoop, The Value of an Archaeological Open-Air Museum is in its use, 23.

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TH1-29 Abstract 03

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

Author - M.A. Postma, Danie\', Groningen Institute of Archaeology, Leiden, 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 borned out by the fact that many have been built in open air museums or open (freely accessible) landscape settings. In professional archaeo-

logists report too, reconstructions, or reconstruction drawings to be precise, help to convey the archaeological message to a larger audience. The practices seem so strange to be adhered to in practice. Perhaps museums prioritise different elements academic quality. This paper is not intended to simply repeat best practices in making reconstructions based on archaeologically excavated building remains; these points have been outlined and discussed on numerous occasions before. Instead, the question is raised why these practices seem so strange to be adhered to in practice. Perhaps museums prioritise different elements academic quality?

This paper is not intended to simply repeat best practices in making reconstructions based on archaeologically excavated building remains; these points have been outlined and discussed on numerous occasions before. Instead, the question is raised why these practices seem so strange to be adhered to in practice. Perhaps museums prioritise different elements academic quality?

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TH1-29 Abstract 06
The “Arty” Way - Dutch Approach to the Presentation of Archaeological Heritage
Author - Dr. Koczen, Marc, MARC heritage consultants, Bemmel, Netherlands (Presenting author)
Keywords: Interpretation, reconstruction, visualization
Presentation Preference - Oral

Aim of this paper is to present a new approach in the Netherlands and discuss its pros and cons with the international community in order to contribute to the ICOMOS Debate on Permissibility and Standards for Reconstructions of Monuments and Sites and to answer some questions asked in the session proposal.

2022 an online survey was presented by the ICOMOS ISC ICP to gather information within the ICOMOS community to start a debate on permissibility and standards for reconstructions of monuments and sites. This debate was called upon during the 17th ICOMOS General Assembly in Paris noting the increasing disregard of existing theoretical principles for the justification of reconstruction, and a need towards significant commercialization of reconstruction activities.

To contribute to the debate, I will present the Dutch approach on the subject of reconstruction with a specific focus on the archaeological heritage.

In contrast to most European countries, there is in the Netherlands no tradition in physically reconstructing archaelogical sites due to the lack of visible substance. In 1999 a National policy document examining the relationship between cultural history and spatial planning, was presented. Under the influence of this policy, progress was made to present the archaeological heritage to the public. Due to the lack of visible substance a more artistic approach developed - with (landscape) architects, designers and planners in the lead - that can be described as the "arty" way of reconstructing/presenting the archaeological heritage on site. In the context of this paper I will elaborate some examples of third dimensional outdoor presentations in combination with in situ conservation of archaeological remains, such as House Moerenburg in Tilburg.

These examples show an inspired design that makes the archaeological heritage both physically and mentally livable and adds to the identity, social significance and contemporary use of the place.

Two important lessons learned for success:
- There has to be a multi-disciplinary and participatory approach during the whole process in which heritage experts play a significant role, and Dilemmas - such as What past to present? Where to put the emphasis, in the preservation of archaeological values or in the development of a place? Whose interest is being done right and to what extent? How much authenticity may be lost? - have to be discussed at the beginning of a project.

TH1-29 Abstract 07
Illustrating 8,000 years of environmental change and human impact in the Areuse River Delta
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Keywords: environmental change, human impact, reconstruction drawings
Presentation Preference - Oral

The delta of the Areuse River lies between the foot of the Jura Mountains and the north-western shore of Lake Neuchâtel in Switzerland, an area where excavations were carried out there between 1995 and 1998 prior to the construction of the A5 motorway. Before this, knowledge about human history and palaeohydrology in the delta was very limited. After preliminary soundings proved positive, a major research programme was set up that involved a team of some twenty archaeologists and specialists from the earth and life sciences.

Test-pitting and trenching across two-thirds of the width (1.3 km) of the upstream part of the delta, followed by excavations and the detailed documentation and sampling of the complex stratigraphies, have revealed a remarkable history of alluvial change and human occupation that covers the last 11,000 years. Over forty palaeochannels have been identified, dating from the Preboreal (c. 9,900 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 archaelogical periods to be portrayed and the choices made relating to the depiction of such features as angle of view, geographical scope, season, types of vegetation and human activities. In addition, the underlying environmental and archaeological data taken into account will be discussed as well as the issues of uncertainty and impression pertaining to these data, or absence of information. Finally, the composite drawing techniques used for the creation of the illustrations will be explained.

TH1-29 Abstract 08
Virtual communication at the great medieval Castrum Tunsbergs
Author - Archaeologist Gustavsen, Cecilia, Stotterfjellsmuseet, Tønsberg, Norway (Presenting author)
Co-author(s) - Fahren, Lena, Stotterfjellsmuseet, Tønsberg, Norway
Keywords: Digital communication, interpretation, reconstruction
Presentation Preference - Oral

Stotterfjellsmuseet, a museum in the medieval town Tønsberg in Norway, is participating in a working group that will improve, renew and develop the well-known archaeological site “Castrum Tunsbergs”. (The medieval castle of Tønsberg). Today’s museums have few information spots, and the audience often don’t know what the place has been like. Stotterfjellsmuseet have made an agreement with sponsors about presenting the sight through virtual reconstructions and other sorts of digital presentations like AR (Augmented reality), role playing games and a museumApp using beacons technology connected to the site. In 2013 we made our first digital reconstruction of the castle of how it could have looked like in 1372 AD. New results from geophysical methods show new structures on the site, which is of interest for future reconstructions. In this paper, we will discuss the advantages and drawbacks by virtual presentations in the light of our archaeological site, Castrum Tunsbergs.

TH1-29 Abstract 09
The Art of Perception in Archaeological Visualisations
Author - Wilson, Kelvin, Kelvin Wilson, Ridderkerk, Netherlands (Presenting author)
Keywords: Illustration, interpretation, phenomenology
Presentation Preference - Oral

When in the year 179 violent tremors pointed to something big about to happen near his house on the Gulf of Naples, Piny 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 small human experiences of the past seems lost to us, yet other sensations are thought tied to places, and are recreated in landscapes and architecture. Indeed, a building may successfully copy plenty of details of this past design. Yet an enthralled visitor could have only ever had one perspective: a building’s interior scale determined by its walls, the appreciation of its exterior too often by the weather (and one person never under the spell of both at the same time). A fine 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 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.
TH1-29 Abstract 10
As Planned, as Built, as Found: Reconciling Written and Field Records at Ksar es-Seghir (Morocco)

Author - Elbl, Martin Malcolm, Portuguese Studies Review / Baywolf Press, Peterborough, Canada (Presenting author)
Co-author(s) - Vavrečka, Petr, Institute of Archaeology CAS, Prague, Praha, Czech Republic

Keywords: Enclosures, Neolithic, Virtual reality

Presentation Preference - Poster

The poster will present features of a circular ground plan, so called rondels, the function of which is assumed to be socio-ritual that appears in the Central European area in the first half of 5th millennium BC. Nowadays, we can only record the subterranean parts - i.e. one to four ditches, and one to three inner palisade trenches. Based on an intensive research that has been going on for almost 40 years, the ideas of the original form of rondels including wooden construction parts have changed in some aspects. Most common view is that a rondel is a solid palisade enclosure further enclosed by ditches. There are two, three or four entrances to the centre of the rondel. Some researchers believe that from the centre of the rondel it was possible to observe the movement of the Sun, the Moon etc. during special occasions (e.g. summer and winter solstices). However, is this prevailing opinion right? What would rondels with several ditches look like if there were parallel mounds or ramparts between them? Is there a possibility that there might have been buildings or other structures in the middle of the rondels? What would rondels look like if they had a roof above the central area? The poster will present some original alternatives of rondel virtual reconstructions based on archaeological excavations.

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

Author - Dr. Kléy, Jacobov, Institute of Archaeology CAS, Prague, Praha, Czech Republic (Presenting author)
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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 ramparts between them? Is there a possibility that there might have been buildings or other structures in the middle of the rondels? What would rondels look like if they had a roof above the central area? The poster will present some original alternatives of rondel virtual reconstructions based on archaeological excavations.

TH1-29 Abstract 12
From archeology to the restoration: the reconstruction of tile stoves in the New Jerusalem

Author - Glatzouna, Olga, Institute of Archaeology of Russia, Moscow, Russian Federation (Presenting author)
Keywords: 17th century, New Jerusalem Monastery, the reconstruction of tile stoves

Presentation Preference - Poster

Workshops of the New Jerusalem Monastery are deservedly considered as one of the main sources of Russian production of the tile. During the excavations of recent years it was discovered a huge number (over 50,000) of previously unknown stove tiles. The tile workshops, kilns, stocks of finished products and remains of standing ovens were excavated. A lot of stone tiles were found near the base of these ovens.

Patrick 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 Bashkortostan, in the Trinity-Sergius Lavra, Moscow. Later New Jerusalem craftsmen formed their own 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. Archaeologists and restorers implemented 16 projects. All ovens were reconstructed on the historical foundations during the restoration of the monastery buildings. Reconstructed ovens allow to present real interiors of 17th – the beginning of the 18th centuries in detail.

TH1-29 Abstract 13
3D modeling, RTI: non invasive and non contact methods for documenting a stamped amphora from Padova

Author - Tomai, Francesca, Università di Padova, Padova, Italy (Presenting author)
Co-author(s) - Ceres, Filippo, Università di Padova, Padova, Italy
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Co-author(s) - Vitelli, Danilo, Università di Padova, Padova, Italy

Keywords: 3D modeling, open-source, RTI

Presentation Preference - Poster

This work aimed to develop a non-invasive and non-contact approach for studying a stamped Dressel 6B amphora from an urban excavation in Padova (Italy). We created a 3D model of the amphora using two methods of acquisition, laser scanning and photography, and processed with an opensource 3D modeling software (MeshLab) and an image-based 3D modeling software (Agisoft Photoscan). Then we focused on the stamp on the rim of the amphora, taking a number of vertical photos to be processed with the open-source software RTIBuilder. We got a PTM file viewed with the RTIViewer, which permits to observe the images using various rendering modes. The realistic and measured 3D model of the amphora let archaeologists to analyze diagnostic parts, i.e. handles, neck, rim, the position and dimension of the stamp, in typological and technological researches. Moreover, the RTI image permits us to get a clear image of the shape and the letters of the stamp, useful for who is carrying studies on stamps and amphora workshops, without handling the object.

Further applications for both 3D models of amphoras and RTI images of stamps might be the creation of online databases of amphoras and stamps from the Mediterranean; measured and scaled reproductions of amphoras using 3D printers, to be used for educational purposes in museums or schools.
EVALUATING THE IMPORTANCE OF OSSEOUS TOOLS IN THE EARLY HOLOCENE: A EUROPEAN PERSPECTIVE

Friday, 2 September 2016, 09:00-13:00
Faculty of History, Room 214h

TH1-30 Abstract 01
Evaluating the importance of osseous tools in the Early Holocene

Author - Groß, Daniel, Centre for Baltic and Scandinavian Archaeology, Schleswig, Germany (Presenting author)
Co-author(s) - Colas, Nanterre Cedex, Faroe Islands
Co-author(s) - Lübke, Harald, Centre for Baltic and Scandinavian Archaeology (ZBBA), Schleswig, Germany

Keywords: Early Holocene, introduction, osseous tools

Presentation Preference - Oral

Organic tools are an important aspect of prehistoric societies, especially in the Stone Age. Therefore the analyses of these can give deep insight into people's typological and technological constraints such as behaviours. Being widely available in hunter-gatherer communities osseous materials have to be considered as one of the main resource for tool production in the past. However, in a European scale, the discovery of objects made with bone, antler and tooth is very irregular. Obviously, these contrasts are related to taphonomic issues but also to economical and cultural aspects.

The session “Evaluating the importance of osseous tools in the Early Holocene: a European perspective” is meant to deal with a wide range of topics related to the analyses of osseous material. Apart from classical approaches, especially technology and typology, we would like to integrate the results from other disciplines and approaches to discuss from a European perspective. Per example, archeozoology or use-wear analyses on bone and lithic tools can also be considered as crucial to a better understanding of the role osseous industries played in Early Holocene communities. This session will also be the occasion to debate taphonomic issues and various contexts of discoveries which influence the archaeological visibility of this group of tools. Consequently we encourage researchers to address these and comparable questions from their own perspective and contribute to our session.

TH1-30 Abstract 02
Evolution in bone exploitation during the Late Mesolithic at Zamostje 2 (Russia)

Author - Trouillet, Julien, Panthéon Sorbonne University, Champagne au Mont d’Or, France (Presenting author)
Co-author(s) - Lozovskiy, O.V., Institute for the History of Material Culture RAS, St Petersburg, Russian Federation

Keywords: Bone technology, Central Russia, Mesolithic

Presentation Preference - Oral

In Central Russia, perhaps more than in other places in Europe, bone industries are one of the most important components of the last hunter and fisher communities. During the Late Mesolithic (7000-6000 B.C.), bone equipment holds an essential place in the everyday life of these societies (Lozovskiy, 1999). Past typological studies have long stressed the importance of such productions (Lozovskiy, 1998, 1999; Yunen, 2001). Nonetheless, a more technological approach has to be undertaken, and the characteristics of the technical traditions linked to the bone equipment have to be detailed. The material connected to the elk (Alces alces) delikage at Zamostje 2 offers the opportunity to do so (Lozovskiy et al., 2013; Lozovskiy et al., 2014). Throughout this period, communities mainly hunted elk (Chay, 2003, 2009). Their skeletons were then used to produce blanks. However, according to the way of life of these groups, they seem to gradually change their technical features by stopping to use breaking by direct percussion for the benefit of breaking by indirect percussion and grooving techniques. This aspect suggests interesting technical evolutions between the first and the second half of the Late Mesolithic, via a more important management of the osseous production. By comparing this data to other categories of material, it is possible to observe some fascinating technical and economical shifts around 6900 cal B.C in which turn illustrate some conceivable social evolutions at this time.

TH1-30 Abstract 03
Inserts from early Mesolithic bone projectile heads and daggers in Central Russia

Author - Dr. Zhiltz, Mikhail, Institute of Archaeology RAS, Moscow, Russian Federation (Presenting author)
Keywords: Use-wear, first inserts, bone, projectile, dagger

Presentation Preference - Oral

Pre-boreal and early Boreal past 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 obliquely trimmed 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 scarce linear traces. Such use-wear resulted from hitting some soft medium dirty material (skin and flesh of hunted animals) and sliding along harder tissues and bones. Rounding, abrasion and single coarse linear traces emerged either from occasional hitting the ground when an arrow missed the target, or from contacts with other arrows. Traces from hitting the ground and kept in a quiver are also observed at points of slotted bone projectile inserts. Inserts of daggers exhibit edge damage in the form of fine to crude and very crude chipping. Sometimes edge of an insert is completely crushed. Lightly developed “meat” polishing is observed at both dorsal and ventral faces in the shape of a narrow area running along the edge of the insert. Such use-wear indicates various butchering activities, first of all detachment of a body of a large mammals. During this procedure huge efforts were applied to the butchering knife, and contacts with bones, sinew and cartilage were often. Linear traces are scarce. They are in the form of strips of oriented polishing or shallow scratches which emerge from 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 04
The biography of an Estonian Mesolithic slotted bone dagger

Author - PhD student Jenseñ, Mathias P.B., Aarhus University, Højbjerg, Denmark (Presenting author)
Co-author(s) - Jönsson, Tommo, the Estonian Literary Museum, Tartu, Estonia
Co-author(s) - By耳-Jensen, Peter, University of Southampton, Southampton, United Kingdom
Co-author(s) - Manninen, Mikael, University of Oslo, Oslo, Norway
Co-author(s) - Riede, Felix, Aarhus University, Højbjerg, Denmark

Keywords: Biography, Mesolithic, Slotted bone dagger

Presentation Preference - Oral

Slotted bone tools are a common feature of the Mesolithic in Northern Europe. However these objects, like many osseous tools, are almost exclusively found in wetlands and therefore often have little or no contextual information, which poses significant issues when attempting to study and understand these objects. Therefore all too often they languish under researched in museum collections. In this paper we present the results of a multi-methodological analysis of the pre- and post-depositional life history of the Ubi dagger, an Early Mesolithic ornamented slotted bone dagger from southern Estonia. This dagger is unique in Europe as the only dagger with possible anthropomorphic figures. Before this analysis, very little was known about this dagger. It had been found during past digging in the 1900’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) - Weikamp, Uwe, 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 finds and good organic preservation characterise the site, which is located north of Lake Schwerin in eastern Germany. Among German scholars, Hohen Viecheln is ranked alongside Bedburg-Königshoven, Fraschof, Douvenee, 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 chronology 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 sitting 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 debitage waste discovered in the sediments and the spectacular decrease of lithic burins and borer’s 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 datas still remain occasional. In addition, in the last few years, the development of use-wear analysis of lithic tools give us new informations about the place occupied by osseous materials in the economy of Mesolithic groups. This communication will be the occasion to make an assessment about the available datas from bone technology, archaeozoology and use-wear analysis. When all the approaches are brought together, the place occupied by bone tools seems to be a more complicated question than previously thought. Taphonomic issues, as well as mobility patterns of Mesolithic tribes, have to be considered in order not to underestimate the role of antler, bone and teeth in the daily life of hunter-gatherer communities. Finally, we will compare the situation of Northwestern-Europe with neighboring regions, in particular to the Maglemosian techno-complex, well known for its abundant bone industry.

TH1-30 Abstract 07

The use of osseous raw material of Vlakno cave (Croatia)

Author - Radovic, Siniša, Croatian Academy of Sciences and Arts, Zagreb, Croatia (Presenting author)
Co-author(s) - Vitezović, Selena, Institute of Archaeology, Belgrade, Serbia
Keywords: bone and antler, experimental archaeology, taphonomy
Presentation Preference - Poster

Vlakno cave is located on Dugi Otok (Long Island), situated in the northern Dalmatia. Systematic archaeological excavations revealed rich stratigraphic sequence from the Late Upper Palaeolithic to Mesolithic. Excavated deposits yielded tens of thousands of vertebrate remains, mostly skeleton remains of large mammals. Considering the amount of available osseous materials it is natural to expect correspondingly high amount of tools made of bone, teeth and antler. Here we integrate results of archaeological analysis and the study of osseous tools. Raw material selection, technological and typological aspects were analysed. Availability of skeletal elements is compared with raw material choices. Recovered bone and antler tools show very little typological diversity between Epigravettian and Mesolithic layers. However there are some interesting small-scale temporal trends (e.g. retouchers and harpoons being almost exclusively present in older deposits). Authors debate this pattern in tool production as the reflection of environmental and subsequently subsistence changes corresponding to availability of targeted animal taxa.

TH1-30 Abstract 08

Osseous tools in the Mesolithic and Neolithic in the Iron Gates

Author - Dr. Selena, Vitezović, 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 this, 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, Vesešina, Kripâlje, etc.). Technological and typological data will be discussed: raw material selection, manufacturing techniques, etc. Antler was the dominant raw material in the Mesolithic period and its importance continues into the Neolithic period, although in most of the Starčevo sites bones prevailed. Typological repertoire included heavy duty and small craft tools, rarely other types of artefacts. Certain techno-types introduced in the Neolithic sites are of Near-Eastern origin, in particular spatula-spoons from cattle metapod. Manufacturing debris is not abundant and the question is whether this is related to taphonomy, excavation and recovery techniques, or specific activities carried out at some of the sites. Overall importance of analyses of the osseous industries and comparative approach of different technologies will be discussed.

TH1-30 Abstract 09

Post-depositional alterations on the bone surfaces – experiments with different agents of abrasion

Author - Mgr Orlowska, Justyna, Nicolaus Copernicus University, Toruń, Poland (Presenting author)
Keywords: bone and antler, experimental archaeology, taphonomy
Presentation Preference - Poster

Taphonomic issues are one of the most important factor that must be concerned during study of every archaeological bones or osseous artefacts. Especially, if our analysis is subordinated to technological or use-wear traces. Identification of human or nonhuman modifications is then crucial. Weathering, trampling, tooth marks, root etching or sedimentary abrasion are just the examples of possible nonhuman destroying agents. The main goal of presented study was to understand and describe changes resulting from the different kind of sedimentary abrasion (among others bioturbation and movement in an aqueous setting) on the bone surface. The experiments related to the study have been divided into two main parts. One was connected with modifications observed on raw bone surfaces. The second one, with degradations raised on processed bone surfaces (among others scraped, polished) and their possible influence on the morphology of observed traces.

TH1-30 Abstract 10

A replication of Neolithic bone harpoon with engraved concentric circles from Šventoji, W Lithuania

Author - Gašiūnas, Lukas, Vilnius University, Vilnius, Lithuania (Presenting author)
Keywords: bone working, experimental archaeology, Stone Age
Presentation Preference - Poster

This poster presents an experimental study which was designed to replicate the manufacture of a bone harpoon with a certain type of engravings using only the tools and materials available for the Subneolithic societies at the environmental setting of the eastern Baltic. The harpoon with a pattern of concentric circles engraved on it was found at the site Šventoji 6, which is a refuse/waste area in the bed of an ancient laggonal lakes and is dated to the end of 4th millennium BC. While concentric circles were widely used to decorate bone and antler tools and ornaments in different chronological and geographical contexts, there are no analogies for the find from Šventoji 6 from the same period even in the neighbouring regions. The problem is that this type of engraving is mostly associated with metal tools, which could have appeared in the region only in the Bronze Age, after 2000 BC. The foreign origin of the harpoon with concentric circles is confirmed by another find from the same site - a worked piece of bone, on which the manufacturer tried to imitate the same decoration of concentric circles, but instead produced polygons with a dot in the center, which is not nothing like the engravings on the harpoon. However, due to the engravings of concentric circles before the appearance of metals comes from a certain type of Reindeer stone tools in North America, the single- and double-scribe compass gravers. In the 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.

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TH1-30 Abstract 04

The modern re-evaluation also allows the accurate dating of the numerous bone points, for which the site is known.

TH1-30 Abstract 05

The modern re-evaluation also allows the accurate dating of the numerous bone points, for which the site is known.

TH1-30 Abstract 06

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TH1-30 Abstract 07

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TH1-30 Abstract 08

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TH1-30 Abstract 09

The modern re-evaluation also allows the accurate dating of the numerous bone points, for which the site is known.

TH1-30 Abstract 10

The modern re-evaluation also allows the accurate dating of the numerous bone points, for which the site is known.
"BARBARIANS" OF EASTERN EUROPE IN THE SYSTEM OF CROSS-CULTURAL INTERACTIONS

Friday, 2 September 2016, 09:00-16:00
Faculty of Philosophy, Room 214p
Author - Rodinikova, Vlasta, Institute of Archaeology Russian Academy of Sciences, Moscow, Russian Federation (Presenting author)
Co-author(s) - Oblomskii, Andrei, Institute of Archaeology Russian Academy of Sciences, Moscow, Russian Federation
Keywords: Eastern European enamel style
Presentation Preference - Oral

Lecture reviewed a problem of Baltic impact in elaboration of eastern European enamel style in Dnepr region. It can be considered by the analysis of stylistics and jewelry tradition. Multiple elements inspired by artifacts made in Roman provinces. Central European cultures and Baltic lands can be seen in morphology and decoration of ornaments from Central Dnepr: s.a. strong profiling, openwork ornamentation, filigree. A variety of artifacts: lamellar neck-rings (headbands), bracelets, fibulae have been decorated by ornament, made by punches, stamps, chisels. "Strong profiled" elements are applied in production of fibulae of type I by G. Kozurzhina and T-shaped crossbow fibula. In A. Oblomskii and R. Terpilovskij's view their origin is connected with forms of Almgen group IV fibulae. The morphology of the body and tail narrow-width form of the comb most probably are close to fibulae of group IV of B2 period from Southeast Baltic, and forms relevant to Lithuanian territories in B2 and B2/C1 periods. Series of bracelets from Baltic lands dated to the same period are supplied with similar narrow-width formed combs. Drinking horns were furnished with strong profiled endings.

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

In decoration of enamel artifacts from Dnepro jewelry technique with imitation of granulation and filigree has been used. Combs of drinking horns are ornamented with punches and stamps. It could be an inspiration of Baltic artisans, who elaborated a peculiar variation of "filigree"-style of 2nd century. A range of imitations of fibulae ornaments are found in Southeast Baltic and Western Lithuanian territories: s.a. neck-rings with cone-shaped terminals, cluster-shaped pendants, fibulae.

Elements of additional decoration of Dnepro enamel ornaments also find analogies in Baltic lands. Motif of triangle in combination with circle characterizes "occulted"-fibulae of "Prussian" style series, spread in Southeast Baltic in B2 period. According to A. Ambroz, M. Shhukin, U. Pfeiffer-Fronhert appearance of "occulted" fibulae in Central Dnepr is connected to this region.

Decoration of Dnepro comb bracelets with obliques and triangles finds parallels with wristband bracelets of Sudovian and Southeast Ukrainian Cultures of B2/C1-C1 period. Some notes about analogies in Southeast Baltic in S-shaped and -remolco ornamentation in decoration of Dnepro lamellar neck-rings (headbands) and bracelets were made by S. Voronjatov. The described jewelry technology and stylistics could be accepted by eastern European artisans as a result of Roman provincial influences. An analysis points out that the influences were received with the factorship of Baltic Cultures. With the support of Russian Foundation for Humanities, project No. 14-01-00289

TH1-31 Abstract 02
About two areas of adornments with champlève enamels hoards
Author - Doctor in hab. Obtolomski, Andrei, Institute of archaeology of Russian Academy of Sciences, Moscow, Russian Federation (Presenting author)
Presentation Preference - Oral

Adornments with champlève 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 (Moschino, Cherkazhino, Borzna, 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. These artifacts are decorated with motifs of a large collection of prestigious, expensive, ornamental objects. The complexes, the majority of hoards relate to the middle stage of enamelled style development. Artifacts of decoration stage were found in two complexes (Moschin and Bryansk) together. In them, all the 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 Zarubintsi and Kiev population. All hoards were found in the area of Kiev culture or near its border (Moschino). Thus, the Dnieper hoards area is directly related to Kiev culture. In Eastern area 4 hoards were found (Zhuravka, Parkovets, Yamshyno-Yuryev, the Labyzhany district). Three of four complexes are hoards of scrap metal for recasting. It is unknown, which population used adornments with enamels in the Upper Don area. As well as in Western area complexes, the majority of artifacts from Don hoards relate to the middle stage of enamel style evolution. In the same complexes adornments of the decoration stage were also found. In Don hoards, as well as in Dnieper/Oka complexes, hinged bracelets, "Okha" 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 handcraftsmith raw materials. The two territorial groups are essentially different. The mass spread of adornments with enamels in the Don area may be explained by attacks of this region population on the Dnieper/Oka territory. The Don population was not interested in adornments, but in scrap metal. Perhaps, these attacks were also the main reason for hoards holding in Western area. The Upper Don region was attacked by the third force soon after these campaigns, therefore, the Don hoards were hidden. This force could be the groups of Chernyakhov culture. As a result of their advance to the Upper Don region in the middle of the 3rd century, Kashinka – Sedekul cultural group was formed.

The report is prepared on the RGNF project No. 14-01-00289.

TH1-31 Abstract 03
"Diadems" from the East European world of enamelled ornaments
Author - Dr. Rodinikova, Vlasta, Institute of Archaeology Russian Academy of Sciences, Moscow, Russian Federation (Presenting author)
Presentation Preference - Oral

Among artifacts, composing a jewellery assemblage from the so-called circle of East European ("barbarian") enamelled ornaments there are items that are sometimes interpreted as neck-rings. In our opinion, shape, size and location in burials allow to consider these things as ornaments of the head, perhaps not headbands but "diadems" used in combination with high hairstyle or over a headdres. Today not less than 23 whole and fragmented exemplars are known. Excluding one find, they have no enamel intact, but are decorated with embossed and engraved geometric patterns. According to peculiarities of shape and ornament the array of "diadems" was divided into three main and two additional types. Their mapping shows that the main types are local. All copies of the type 1 come from the Baltic region, mainly from the territory of modern Lithuania. Most of the type 2 finds are connected with Upper Oka and the Don region. The exceptions are a few items from the Upper Sula and the Lower Dnieper regions, which may mark the direction of cultural influences from the eastern part of the East European forest zone to southern forest-steppe and steppe territories. The majority of the type 3 ornaments are found in the Middle Dnieper region and on the Dnieper left bank. Perhaps, it was due to the fact that the Dnieper region was an important route of communication. The type 4 finds were also been extended in the north, it may be indicated by specific finds in the upper reaches of Berezina and the middle reaches of Western Don. Recently artifacts from the circle of East European enamelled ornaments, including fragmented "diadem", have also been found in the Upper Don region (items connected with samples of type 2) are known as a part of the only complex - Moschino hoard, so they don't have local or chronological peculiarities.

The chronology of the "diadems" in general corresponds to the chronology of "barbarian" enamelled ornaments. The earliest is the type 1, which has been found in Sasandraushtika (type II). It is dated to the middle of the 2nd century to the end of the 3rd century. Adornments of the type 2 perhaps were derived from samples of the type 1 and can be related to the second half of the II – I c. AD. Among the types 1 and 2 "diadems" there are no specimens that are correlated with the late period of the "enamelled" style development. The type 3, in contrast, includes items pertaining to the early and the final stage of the existence of enamelled ornaments in the
East European champlevé enamels: production technology and possible origin

Author - Rumiantseva, Olga, Institute of archaeology, Russian Academy of Sciences, Moscow, Russian Federation (Presenting author)

Keywords: Eastern Europe, enameled ornaments, Roman time

Presentation Preference - Oral

East European enamelled objects appear in the Baltic, Upper and Middle Dnieper regions in the mid-2nd century A.D. From this area they spread rapidly over a wide territory, reaching the Crimea and the Caucasus to the South and the Kama region to 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. Il’ten-Witblewska and T. Stawiarska. The technological investigation of enamelled objects of the Briansk hoard aims to develop this line of inquiry.

The hoard discovered in the Briansk region (south-western part of Central Russia), is dated to the late 2nd – 3rd c. A.D. It contains 24 ornaments with enamelled decoration of red opaque or polychrome glass made in champlevé technique. Techniques used for enamelling monochrome needles include the applying of wet glass powder or previously turned pieces of glass. Large fields were filled by powdered enamel in two stages: firstly the ground layer was heated, afterwards the upper layer was applied. Polychrome needles with combination of enamels of different colours without metal bars could be enamelled using juxtaposed blocks of glass, or, more likely, by a combination of blocks and powdered enamels of different colours. It cannot be also excluded that in some cases enamels were applied and heated successively colour by colour. Line- and wave-shaped elements were applied as wet enamel powder (possibly using stencils) and as pre-formed drawn rods. The choice of the technique seems to depend on the glass colour, special features of colour formation and difference of melting temperatures for enamels of diverse colours.

The following technological features of the studied objects should be highlighted: applying of glass working techniques (such as the use of drawn rods); complicated combination of different methods of enamelling, implying skills of a high degree; the use of cut blocks of glass demanding semi-finished products of a size exceeding one typical for beads. It enables to assume that the objects in question were not produced by local “Barbarian” craftsmen. It is likely that they were made by professional glass workers, possibly, of provincial Roman origin. Regarding the style wherein the ornaments were made it appears that the East European enamelled objects make part of artifacts, 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. They are very tempting to assum their location at the Barbarian settlements characterizing by the presence of late antique representatives, numerous imports and developed handicraft industry, interpreted as regional industrial, commercial and administrative centers, and also trading posts beyond the limes.

The funding for this project was provided by Russian Foundation of Humanities, № 14-01-00269a.

Glass vessels of the Chernyakov culture – technology and origin

Author - Likhter, Julia,Archaeological research in construction business, Moscow, Russian Federation (Presenting author)

Keywords: ancient glass, chemical composition, manufacturing technique

Presentation Preference - Oral

There are different kinds of glass vessels – the study of the manufacturing technique allowed to single out 13 schemes of making vessels which are connected with workshops of various types. It allows us to identify the places where the goods under investigation were manufactured. Glassmaking workshops where grind objects were produced were situated in big Empire towns. Vessels hot decoration were made in the common glass-house workshops which were situated somewhere in Empire.

The commemorative gifts or immolating of items?

(TH1-31 Abstract 07)

The New materials of Hun-Sarmatian time from the territory of Kazakhstan

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Keywords: ritual ceremonies, burial gifts, Mangyshlak Peninsula

Presentation Preference - Oral

A few stone constructions were investigated at the territory of Mangyshlak Peninsula (Republic of Kazakhstan) in 2014 – 2015. The space inside of stone fence contained the traces of varying ritual ceremonies: crushed coryclex, vessels, embedded into the earth, and calciferous altars. In addition, the one small pit contained the bridle kit, another one – the belt kit consisted of incrustate items, and the third – the remains of saddle (silver margins and details of garniture). All components of material complex correlate with items of 5 – 6 centuries, found at the territory from Danube to Southern Ural. At the same time, the planigraphy and character of construction indicate the Sarmatian range of sites. An article considers the findings in association with theory of “burial gifts” among the Huns, offered by I. Bona, P. Tomka and supported by A.V. Komar. We made the case, which evidenced the appearance of developed cults, associated with sacrificial gifts of prestige items in Caspian Sea region.

The formation of these rider rites are in account with nomads, who came to the new territory together with Hun invasions of West and South.

Controversial problems of studying early medieval hoards in the Middle Dnieper region

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

Keywords: Hoards of metal ornaments, individual attire, interpretation of archaeological sources, Middle Dnieper region

Presentation Preference - Oral

Hoards of metal ornaments for a long time have been considered the sole archaeological source of the third quarter of the lst millennium AD in the Middle Dnieper. After the discovery of settlements and cemeteries study hoards become secondary. Objective circumstances of the past 20 years, namely:

The lack of systematic scientific field research as the settlements and cemeteries 7-8 centuries AD on the territory of the Middle Dnieper region

Uncontaminated spread of extractive works with metal detectors led to the facts that:
1. The perception of saturation monuments of this time non-ferrous metal was radically changed - the number of findings has increased many times.
2. The context of the finds of metal items is immediatly lost, they are removed from the complexes and the cultural layer.
3. The only complexes in which can be credibly traced occurrence of artifacts are fixed treasures.
4. The accuracy of the information about the origin of these findings is low, but in some cases verifiable. The accuracy of the information about their composition is low too, they can be falsified. The completeness could be different from disparate up to fully taken.

We have accounted for about 100 complexes treasures of various origins. The following conclusions can be drawn on the basis of their study:

The amount non-ferrous metals, which were in use, are very large. However, gold is not represented at all, and silver is poor-quality. In the complexes deposited on an individual attire, male or female, or a number of them, belonging to a small group (maximum 5 -6 individuals). At the same time there are complexes with unpaired things and scrap. Deposition of these hoards was
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 first 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 (as a cultural norm), as a mass deposition of the elements of ceremonial costume in hoards, is a sign of the cultural unity of the ancient community. This community can not be correlated with “Arians” described in written sources. But the most important questions still remain unresolved: Were hoards complexes of prolonged accumulation? How can be characterized the deposition of hoards (gradual, one-time, deliberate, etc.)? What compelled to deposit the sets of elements of the traditional ceremonial dress in a plurality of treasures? What led to the avoidance of the “artifacts”, containing serial things, jewelry, belt ends, buckles as well as specific votive forms? To apply to the investigation as well. Most of the discussed buried complexes were discovered during excavations performed in the historic Eastern Prussian districts of Sambia and Natangia on the flat burial sites Bol’shoe Isakovo (former Lauth), Schossejnoe-1 and Schossejnoe-2 and are published for the first time.

**TH1-31 Abstract 09**

**Sites of the late stage and the end of the Imenkovo culture in the Middle Volga region**

**Author**: Dr. Vyazov, Leonid, Institute of Archaeology named after A.Kh.Khalikov, Tatarstan Academy of Science, Kazan, Russian Federation (Presenting author)

**Keywords**: early medieval archaeology, Imenkovo culture, Middle Volga region

**Presentation Preference**: Oral

The issue of defining the time and circumstances when the one of the largest early medieval archaeological cultures of the Eastern Europe ceased to exist is the most debatable one for the archaeology of the Middle Volga region. For years of Imenkovo culture studies, several completely opposite hypotheses on this issue were developed. The majority of the hypotheses are of historiographical interest, but the issue still remains debatable. According to various researchers, the cessation of existence of Imenkovo culture is related either to the leaving of population from the region at the end of the 8th - the beginning of the 7th c. (Alexey Bogachev) or at the end of the 7th c. (Evgeny Kazakov) or to the slow dissolution in the culture in the early Volga Bulgarian culture in the 8th-9th centuries (Galina Matveeva, Yuri Seremykh).

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 6th-8th c. The chronological framework of the last stage was determined according to details of heraldic-style belt-sets, Sassanian coins, several furniture and costume details.

The chronological analysis of the collections allowed to determine the late Imenkovo materials from Komitoms 2 burial ground and Malikasheskovo 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 ‘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 final stage.

The materials of the late Imenkovo sites have a clear local specifics conditioned by different directions of cultural relations. It is possible to define stable local variations of culture only on the late stage of the Imenkovo culture. The specific regional types of furniture and costume details and differences in ceramic complex appeared in the 6-7th centuries bear an evidence of this.

The cessation of existence of Imenkovo sites in the different regions was taken place in different periods, possibly, due to different reasons. In the majority of regions with Imenkovo culture remains, the upper boundary does not exceed the first half of the 7th century. However, in the eastern part of Imenkovo culture area remain later, probably even until the beginning of the 8th c.

**TH1-31 Abstract 10**

**A new view on the chronology of fibulae of Dollkeim/Kovrovo type in the light of new research data**

**Author**: Dr. Prassolov, Jaroslaw Alexei, ZBSA, Schleswig, Germany (Presenting author)

**Co-author(s)**: Skvortsov, Konstantin, IA RAN, Kaliningrad, Russian Federation

**Keywords**: fibulae of Dollkeim/Kovrovo type, Kaliningrad region, former East Prussia, Sambian-Natangian culture, chronological frame

**Presentation Preference**: Oral

Further development of the existing fine chronology of one of the most characteristic find categories – fibulae, remains an important task in the archaeological research of the Iron Age Sambian-Natangian culture (also known as the Dollkeim/Kovrovo culture) in the south-eastern part of the Baltic Sea basin. Actual investigation focuses primarily on the verification of the chronological frame of fibulae of Dollkeim/Kovrovo type. For this purpose presumed mutual occurrence of several fibulae types as well as other characteristic artefacts (i.e. chronological markers) in the burial complexes are discussed in detail in the present paper. 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-called fibulae with the star-shaped foot, fibulae of type Sokhmarlaw/Skowarz and Dollkeim/Kovrovo, which are found in the cremation graves in the area of Sambian-Natangian Culture starting from the Early Migration period. Comparative analysis results of further chronological markers of the periods in question (knife-daggers, shoulder strips, jewelry, belt ends, buckles as well as specific votary forms) apply to the investigation as well. Most of the discussed buried complexes were discovered during excavations performed in the historical Eastern Prussian districts of Sambia and Natangia on the flat burial sites Bol’shoe Isakovo (former Lauth), Schossejnoe-1 and Schossejnoe-2 and are published for the first time.

**TH1-31 Abstract 11**

**Salt production in the Landscape of the Polish Lowlands in the Roman period**

**Author**: Dr. Ruiz Del Arbol Moro, Maria, Institute of History, CSIC, Madrid, Spain (Presenting author)

**Co-author(s)**: Bednarczyk, Jozef, Institute of Prehistoric Arnu, Poznan, Poland

**Keywords**: Poland, Roman period, Salt production

**Presentation Preference**: Oral

The aim of our paper is to present the recent developments and achievements of our project about the study of ancient exploitation and production of salt in Poland, which implies both the study of salt production processes and its role in the organization and articulation of the territory during the Roman period. The geo-historical framework for this study is the north western part of Poland (Kuavia and Great Poland), during the period of the Roman influences (II-III AD). The essential underlying idea of our investigations is the role of salt as a structured 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**

**Langoards necropoliis 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 Scythiania to Italy, the Lombards settled for about 40 years in Central Europe, in the Danube river area and Pannonia, between Vienna and Budapest, where a lot of burial areas have been found, here, with Franks people at 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 homogeneous 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 a 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 13**

**Was there a contact between Early Slavs and Lombards in the area of western Pannonian Plain?**

**Author**: Dr. Pavlovič, Daša, National Museum of Slovenia, Ljubljana, Slovenia (Presenting author)

**Keywords**: Early Slavic Settlement, Lombards, Western Pannonian Plain

**Presentation Preference**: Oral

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

The general consensus among scholars is that the early Slavs did not settle in the area of the western Pannonian Plain prior to the departure of the Lombards into Italy, possibly after 586, but probably only around 580 or later. The historical interpretations in question were proposed mainly on the basis of written sources, since the material evidence for this area was absent. This situation with the lack of material evidence changed at the end of the 20th century, when extensive excavations on the route of the motorway network were undertaken in north-eastern Slovenia. A whole series of archaeological sites located south of Murska Sobota revealed the previously little-known early Slavic lowland settlements.

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 Pannonia. Unexpectedly, the area between Pannonian settlement and Central Slovenia, i.e. north-east Slovenia, was left unsettled by Lombards. Since the lowland settlement of indigenous Romanized inhabitants in the 6th century was still not discovered, it is strongly believed that in Lombar conquered the early Slavic settlement west of the above mentioned line. A further argument for the hypothesis is the archaeological proven evidence 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.

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**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)

**Co-authors:** Dr. Cucurea Bogdan, History and Archaeology Prahova County Museum, Ploesti, Romania

**Keywords:** center and periphery, cultural interaction, historical ethnic groups

**Presentation Preference:** Oral

It is a long discussion about the influences between the Romans and barbarians, last one understand as the other. The Lower Danube area brings its contribution to this debate, even till now the main discussion was based only on the discoveries from Pannonia. Unexpectedly, the area between Pannonian settlement and Central Slovenia, i.e. north-east Slovenia, was left unsettled by Lombards. Since the lowland settlement of indigenous Romanized inhabitants in the 6th century was still not discovered, it is strongly believed that Lombards encountered the early Slavic settlement west of the above mentioned line. A further argument for the hypothesis is the archaeological proven evidence 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.

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**TH1-31 Abstract 15**

**Barbarian Coins, Elite Identities and the Birth of Europe**

**Author:** Dr. Wipp-Will, David, Römisch-Germanische Kommission des Deutschen Archäologischen Instituts, Frankfurt am Main, Germany (Presenting author)

**Keywords:** Coins, Goths, Imitations

**Presentation Preference:** Oral

A commonality of the cultures of “Barbaricum” northern and Eastern Europe was the production of coins imitating the issues of the Roman Empire. Analysis of die-linked coins (i.e. struck from the same die and thus produced in the same workshop) has long demonstrated that there were wide-ranging exchange networks across much of the northern “Barbaricum” during the Roman and Migration periods. Furthermore, both official Roman coins and imitations, as well as their imitations, played an important role in the self-representation of the barbarian elites.

However, the discovery of large quantities of new material, above all from the Ukraine, has radically changed and extended this picture: we now know that the phenomenon was much more widespread and 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 “IMAIGA: images-maisstais” by the University of Warsaw and the Römisch-Germanische Kommission that aims to understand how these imitations of Roman coins were produced and used by the developing elites right across the northern and eastern “Barbaricum” to demonstrate their status. The picture that is emerging is one of disparate groupings linked together by common elements of material culture and of a wide-ranging exchange network, but above all of the crystallisation of the Gothic power centre on the territory of the Chernjakhov/Sintana delMure Culture.

The coins not only paint a diverse and deep-raging picture of how such elites saw and expressed their identity, but with both to Rome and to each other. They also provide new and revealing insights into the interaction and communication between the northern and eastern barbarians, in particular the Goths on the one hand, and the imperial administration and the population of the provinces of the Roman Empire in Late Antiquity on the other.

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**TH1-31 Abstract 16**

**A Barbarian, meaning who?**

**Author:** Dr. Narlich, Kryzysztof, University of Warsaw, Chojnice, Poland (Presenting author)

**Keywords:** Identification, Relationship and influence, Romans and Barbarians

**Presentation Preference:** Oral

In late antiquity, due to a change in social relations inside the barbarian societies, perception of Barbarians themselves changed as well. As a result of the intensification of contacts which less and less frequently took a form of a one-sided diktat, the late-antique community was made by the group appreciating the ethnological specifics of other populations, which led to recontextualisation of meaning and to working out a new model of mutual relations. This change resulted in taking over certain cultural behaviours and was reflected in the material culture. All that, at least in the Danube area took place in the shadow of newly-organized system of fortifications, which can be considered a characteristic feature of the late-antiquity warfare. The war itself, on the other hand, was the factor which defined particular barbarian populations, which made them create permanent state organisations.

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.

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**TH1-31 Abstract 17**

**Burials with weaponry of the upper Dnieper version of the Zarubintsy culture**

**Author:** Vorontsova, Larissa, 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 Pazyryk and middle Dnieper versions is a custom of placing weaponry in a grave. On the burial ground Chaplin 14 speak and dart heads (5%) were found in 282 burials, on Yurkovichi in 1 out of 19 (5.3%). On the burial ground Goroshkov spearheads have been found in six investigated burials out of 32. All the heads are iron, socketed, with a leaf-like feather, and bear traces of having been in fire. On the outside of the socket of one of the heads of the Goroshkov burial ground (burial No.9), there are prints of fabric preserved. In Goroshkov the heads lay in different parts of the burial pit parallel to it. In most cases, the burials with weapons, apart from modeled bowls, contained horseshoe-like iron fibulae of syglogama type and (or) iron knives with hunched bases. What is more, the knives always lay with the point directed to the side opposite to that of the spearhead.

A unique element for the funeral rites of the 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 placing 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 burials of the Danube zone. The vertical piercing (shining) of a spearhead into a burial pit had apparently some ritual or magical significance.

This custom is interpreted 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
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 Zaporizhian culture an iron boardard of a sica, a battle knife (burial No.28) and the spiked head of a Scythian arrow (burial No.30) were found in Gorskiyot.

On the basis of the finds of various versions of fibulae of the middle and late La Tène scheme, the burials with weaponry of the upper Dnieper version of the Zarubintsy culture are dated to as LTC- LTD periods.

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

Presentation Preference - Poster

Keywords: Wheel-made pottery, Iron Age, Zaporizhian Culture

TH1-31 Abstract 18

Geoinformation methods in dealing with East European barbarian champlévé enamels

Author - Radysyuk, Oleh, Institute of archaeology of RAS, Moscow, Russia (Presenting author)

Keywords: Champlévé enamels, Geoinformation methods

Presentation Preference - Poster

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

The source corpus by G.F. Korzukhina (1978) reflected the situation of the early 1970s. About 450 objects divided into 10 categories (Brooches, Bracelets, lunula-pendants, Chains, Plate items, Neck-rings, Charms, 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. Oblomovy (2007). It included 142 findings mostly from the Middle Dnieper region. The difference in volume of finding is obvious. In the upper Dnieper version of the Zarubintsy culture are dated to the LTC-LTD periods. At present the accumulation of sources is irregular. So in the Baltic region new finds are rare and are related to archaeological researches, while in the territory of Ukraine, Russia and Belarus number of known finds has increased significantly. Vast majority of items was found due to the massive looting of archaeological sites. This process has been going more intensive from the late 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 regional and interregional series of things, based on statistically valid samples of items.

Work was financed on RGNF grant №14-01-00289

Presentation Preference - Poster

TH1-31 Abstract 19

Neck-rings of the ‘enamelled style’ in the South Eastern Baltic Area and in the Dnieper–Oka region

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

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

Presentation Preference - Poster

Amongst different types of East European enamelled ornaments, the neck-rings (torques) made of three twisted wires and with 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 (Mišionys, Verbliai). In the Dnieper–Oka region, such neck–rings originate from hoards (Moschinh, Muhigia’ye, Glazhevo, Usaul). Amongst the neck–rings of the Mišionys burial ground, there is a specim cut in two — what could serve as a piece of evidence of ‘killing’ the stuff. In three hoards from the Dnieper–Oka region, cut neck-rings are known, too. The latter could indicate the sacrificial or votive character of the hoards of enamelled ornaments.

Presentation Preference - Poster

TH1-31 Abstract 20

Cross-cultural interactions in the light of wheel-made pottery from the cemeteries in Ułow (Poland)

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

Keywords: wheel-made pottery, burial rite, Iron Age, Lödingen Culture

Presentation Preference - Poster

In the vicinity of Ułow (Middle Plockmzce, SE Poland) the complex of multicutural 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, Ułow is located in the settlement zone F of the Wielbark Culture. Therefore, the features typical of this culture dominate over the cemeteries discovered in Ułow. 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. Małomecz Group, Chernyakhov Culture). It is known that the Wielbark Culture has a small number of wheel-made pottery. Moreover, it has not yet been proved that the population of this culture produced such a ware (apart from one “episode” from Weklice). According to many archaeologists, wheel-made pottery comes from the Wielbark Culture sites are in most cases imported from the Chernyakhov or Săntana de Mureş Cultures. In the light of this fact, surprising is the extraordinary number of wheel-made pottery and its fragment discovered in Ułow. 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 C2b-C2 and connecting the ornamentation of hand-made Wielbark Culture pottery with the technology and morphology of wheel-made pottery characteristic for the Chernyakhov or Săntana de Mureş Cultures.

Presentation Preference - Poster

TH1-31 Abstract 21

The heyday and decline of settlement of the Przeworsk Culture in the Lublin Region, eastern Poland

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

Keywords: Interdisciplinary studies, Przeworsk Culture, settlement reconstruction

Presentation Preference - Poster

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

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

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

This site is the largest archaeologically explored settlement of the Przeworsk Culture in the Lublin Region with relics of dwellings cultures. The dating of the majority of artefacts and features uncovered in Nieszawa Kolonia can be placed within the phases B2 and B2/C1-C1a of the Roman Period. One can however also mention a whole set of metal and ceramic artefacts pointing the functioning of this Vistula river bank settlement in the late Roman Period and early Migration Period, that is, at the time of phase C3 (or still the final stages of phase C2) and phase D1, which puts the problem of the decline of settlement of the Przeworsk Culture in the Lublin Region in a new light.

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

The interdisciplinary studies carried out in Nieszawa Kolonia systematically fulfills the still up-to-date postulates of the internationalization of studies over settlements of the Przeworsk Culture.
TH1-31 Abstract 22
The preparatory stage of pottery technology among the Russian forest-steppe cultures in IV-VII AD

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Keywords: ancient pottery, East European Plain, Migration period
Presentation Preference - Poster

The time of the Migration period in the area the Eastern-Europe forest-steppe is associated with the spread the "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.

Considering area includes series of archaeological cultures: Prague-Korchak, Penkovo, Chernyakhov (in part), later Kiev and Kolochno, Mozhchno, culture of Volga Nains, Imenkovo. Studying of Eastern-Europe forest-steppe sedentary cultures ceramics as a single phenomenon has not been conducted, but there are a some works in separately. The main part of the special researches about ceramics are works devoted to the vessels shapes typology, based on the method of ceramics processing, which had introduced into scientific circulation by IP Rusanova and VF Vaknin in 1973. These typologies had arose from the mid-1980s and still are working. These include typology of AM Obolinsky, OS Rumyanetsva, AM Vorontsov, VV Grishakov. Besides them there are typologies based on the features, defined as type-forming by the researchers themselves (for ex. the functional features of vessels, features of profiling and others) - typologies of BV Magomedov, O. Petruskas Ge Matveeva, GA Massalitina. Thus researchers attention focused mainly on the vessels shapes. At the same time, about the pottery technology facts is bit. The first step in this direction has been made by AA Bobrinsky. He studied in detail the pottery of the Chernyakhov culture, in particular the selecting and procuring the raw materials, blending the pottery pastes, features of build, the study of pottery circles, the organization of the pottery industry. In addition, technical-and-technological analysis conducted by NP Salagina of the Imenkovo culture pottery covered all stages of pottery production and gave a full presentation about the traditions of this population. In recent years, some ceramic sets of Chernyakhov culture began to be exposed to petrographic and X-Ray studies.

We believe the analysis of pottery technologies is the topical question of study of sedentary cultures of the Eastern-Europe forest-steppe, and this stage of our research work is devoted to the characteristics of the raw materials and pottery pastes. Our observations were made on fresh fracture sherds using stereoscopic microscope MS-1. Definition components of raw and paste composition was carried out by collation with a models collection, developed on the basis of Samara expedition to the experimental study of ancient pottery.

The research was identified the several traditions to varying degrees dominant in different territories. However, the general of most traditions are the selection skills potters of "low-fal" clays and adding a gromgmade of splintered vessels in the composition. We suppose that the detected affinity of pottery traditions is reflecting the close connection within the studied population.

TH1-31 Abstract 23
Glass beads of Imenkovo culture
(on the materials from the Tetushskoe II settlement, Middle Volga)

Author: PhD Stolyarova, Elaterina, Institute of Archaeology RAS, Moscow, Russian Federation (Presenting author)

Keywords: glass beads, Imenkovo culture, Middle Volga region, imports, the Middle East
Presentation Preference - Poster

Tetushskoe II settlement is situated on the northeastern outskirts of the modern town of Tetush (Tetush district, Republic of Tatarstan). Our investigations suggest that the glass beads which were found on the settlement are the imports from one region, the Middle East. The analogues to these beads within large geographical limits show their extremely long chronology. Nevertheless, we can say that on the sites of Upper Kama region, which is the closest territory to the Tetushskoe II settlement, such beads only appear from the 6th century A.D.

TH1-31 Abstract 24
'Burakovo horseman': burial, hoard or imaginary assemblage? (concerning the status of the complex)

Author: Dr. Bugrov, Dmitry, Institute of Archaeology named after A.Kh.Khalikov, Tatarstan Academy of Science, Kazan, Russian Federation (Presenting author)

Keywords: early medieval archaeology, hoard, Middle Volga region
Presentation Preference – Oral

Every archaeological culture contains a site that becomes 'an archaeological talk of the town' in a positive or negative way. Komintern burial ground became such type of site for the Middle Volga region sites of the 1st millennium AD. The site was heavily damaged by abrasion and excavations (1984-2003) were irregular and limited. Reports on Komintern 2 excavations were partly published (Kazakov, 1998; 2005), the historiographical tradition, mainly controversial has managed to developed in such difficult circumstances. Situation becomes more complicated due to existence of another complex, 'Komintern hoard' (also known as 'Komintern burial mound', 'Burakovo burial ground' or 'Burakovo horseman') that was similarly named and have close location to Komintern 2 burial ground. The 'hoard' has controversial historiography developed around it too. This work aims to find origins and define status of the 'hoard' and its relations to the burial ground.

According to the first publication (Izmaylov, 1995) the 'hoard' originated from the burial ground (nearby Burakovo) that was destroyed by water reservoir. Later publication (Mukhametshina, 1998) as well as documents of Bolgar Museum-Reserve argues that the artefacts were found by the resident of Burakovo, P. Levenig, in 1983 in Beganchik island (located in the place of eroded burial ground), 1 km far from Komintern. The final localization was inaccurate, as there is 5 kilometre distance between Burakovo and bank of the reservoir. The second is also inaccurate (as the island located to the west from Komintern and no burial mounds were found there earlier), however it may be more trustworthy. Attribution of all the artefacts to one complex is a random interpretation of P. Levenig, 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 Asiain culture burial ground of the 3-4th centuries are beyond of this chronological frameworks. The iron stripup and probably two silver belt plates are of the 8th century. In spite of the chronological entity of the group of other artefacts, stylistically they can be divided at least into three groups: (1) golden belt-set and two pommels of swords with torquise inserts, (2) silver stamping belt-set with lead filling, characaristic for 3rd horizon of Volga region heraldic style, (3) two cast silver strap ends of Arzayashov 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 'Devichiy 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 mining activity of the Cantabrian coast. That is, with ironworks located generally on the top or flanks of mountainous terrain, equipped with one or more slag-tapping furnaces. These are the so-called haziolak, which in the Basque language are wind ironworks, as opposed to the zahrakol or hydraulic ironworks.

Justified by recent discoveries, it seems more likely that this impression is just a result of the nature of archaeological investigation itself, traditionally, had been prioritizing very precise prospections and intervention in the mountainous zones of the Basque Country. Nothing, however, was known about the inland flatlands except, paradoxically, that there was a major metallurgical activity judging from textual information. The so-called “Reja de San Millán”, dated 1025 A.D., gives the list of the villages (La Rioja) demanded the payment of iron taxes, which is almost 300 villages of Álava from which the monastery of San Millán de la Cogolla (La Rioja) was provided considerable differences between the sites. Thus, while some basically maintain the pattern of spatial and production organisation of the first phase, 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 mining activities and only maintaining the forging activities.

Moreover, the archaeobotanical and metallurgical studies undertaken have enabled archaeologists to identify the type of iron metal used, the different models of exploiting woodland, diverse technological changes in production (obtaining iron or steel according to needs) and other aspects relating to the operation of slag-tapping furnaces and forges.

TH1-32 Abstract 02
The Iron and the Smartphone: ‘expensive’ technologies at the verge of the millennium

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Keywords: farming iron implements, medieval peasantry, technology

Presentation Preference - Oral

It is widely accepted that the fall of the Roman Empire had a negative impact on the iron industry across Europe affecting its production, distribution and consumption (e.g. Tylecote 1980). The metal production 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 poors. 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. Hameure 2011).

In stark contrast with these arguments, recent archaeological excavations on rural settlements from Early to Late Medieval times (Quirós Castillo 2011) carried on the Basque Country area (north of Spain) point out that even during the earlier period the inhabitants of the villages enjoyed relatively large amounts of iron implements –counts by hundreds-, typically households or farming base tools. The metallographic analyses of thirteen iron implements reveals that these are very acceptable quality items made of low-carbon steel by puddling, employing occasionally sophisticated techniques such as carbonation and even the complex pattern-welding technique so far only seen in the decoration of high status weaponry (Peirce 2002).

This paper aims to investigate the engineering parameters behind the iron production and manufacture of iron utensils during Early Middle Ages as well as the accessibility of those by the peasantry; the concept of ‘expensive’ applied to technology is reviewed to point that medieval iron might be high-priced but still an affordable commodity same as the electronic technology nowadays. The conclusion is that ‘expensive’ is a very relative term depending not only on production and consumption parameters but also that geographical location, role within the society or political context had a considerable influence to access the reusable and functional iron and offers a tentative reconstruction of interplay between iron models of production and peasant communities during EMA in the Basque Country area.

References cited:

TH1-32 Abstract 03
Iron and Society in the Baltic 900 - 1350 AD

Author - Assoc. Prof. Magnusson, Gert, Stockholm University, Stockholm, Sweden (Presenting author)

Keywords: Iron production, trade, urbanization

Presentation Preference - Oral

Iron-making has been a central activity in Europe for several millenia and one of the main driving forces for the development of society. By the end of the first millennium AD, iron-making had spread across the northern latitudes of Europe and the production of iron had become a central feature of Baltic society. The majority of this activity was small-scale and of low-technology production. Small-scale production has been the default in rural areas even until the early modern period. Yet, the importance of iron-making for the economy and society is illustrated by the wealth of textual references to it in the medieval period. Despite the common perception that high investments and major technologies were needed to produce iron, large-scale production was not always necessary to supply a society. The small-scale production of iron was widely distributed in the Baltic region as a way of life.
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 Vironi on the Swedish east coast in the county of Småland. Here there was what has to be described as a mining area of lake and bog ore with over 1000 known bloomery sites with a minimum of 144 000 tons of produced iron. A production on such a scale during a period of 200 to 300 years evidently had a great impact on the whole Scandinavian and Baltic society, despite the fact a new more efficient technique, the blast furnace, was to be developed in the mining area of Bergslagen further north in Sweden around AD 1000.

The bloomery processes of iron production survived the whole period and a regional specialization and social differentiation developed. As a result peasants on the plains founded their economy on grain production and peasants of the transitory regions between plain and woodland produced a surplus of animal products, while woodland peasants often sold handicraft articles, but iron opened up a new need for labor and produce, where the forests, lakes and bogs contributed with raw materials. Under these conditions iron production was introduced and raised within the peasant society linked to the emerging states, for example through towns like Kalmar, Gotland, Kuressaare and other towns around the Baltic.

The role of the cities also grew in importance and urbanization became a vital part of these economic and social changes. Iron was traded from Kalmar during the 13th century under the name of Calmare iron. The iron production in Visby was recognized by the Pope in 1229 as a serious political problem. As the people of Gotland traded arms to the Baltic 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 11-1200’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 outward. This setting was characterized by diversity and flexibility which characterizes resilience. This paper will discuss Bergslagen as a system network focusing on innovation, expansion and resilience.
TH1-33 Abstract 01

The Avellino Event: investigating the migration resulting from the Bronze Age eruption of Vesuvius

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Abstract

The “migration period” is characterized by movements of people coming from the fringes of the Roman Empire and settled on the Roman territories. Such a period is poor of contemporary historical records, but rich of archaeological material. This has opened a long-lasting debate to have a view of the patterns of migrations, the impact of new peoples on the autochthonous populations, and the demographic processes occurred. The study of the early medieval period encourages a more direct comparison between different disciplines both in terms of methodology and result data. In recent years, archaeology has considerably improved its interdisciplinary approach, integrating scientific evidence to construct a nuanced view of 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.

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TH1-33 Abstract 02

Phenomena of migration on Chalcidice

Author - Dank, Olivia, University of Basel, Basel, Switzerland (Presenting author)

Keywords - Chalcidice, colonisation, local identities

Presentation Preference - Oral

Abstract

The Chalcidice, a peninsula in Northern Greece, formed since early times a transit area and can be interpreted as the endpoint of migrations. While it was called by the Greeks of the south the “Peninsula in Thrace”, the toponym “Chalcidice”, which is used from the 2nd century AD onwards for the whole peninsula, was related before to only the area of the settlement of the Chalcidicians. The origin of the name is controversial from chalcos (copper), from the city Chalkis on Euboea or from the so called Χαλκίς, a Greek tribe which settled in the area during the migrations of the 2nd millennium (Hdt. 7.185).

Based on this ethno-complex the social dynamics of the microcosm of the Chalcidian peninsula should be investigated. The presentation provides on the basis of literary, epigraphical, numismatic and archaeological sources an overview of the methodological instruments which can be used to analyse the impact of new settlers on the local populations in this specific area. The aim is to analise with a focus on the religious context the patterns of migration.

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TH1-33 Abstract 03

A Regional Assessment of Migration in Roman Britain: The Cultural Narratives of Decapitation Burials

Author - Christie, Shaheen, University of Wisconsin-Milwaukee, Saint Charles, United States of America (Presenting author)

Keywords - Isotope Analysis, Migration, Roman

Abstract

The Roman Iron Age in Britain (A.D. 43-410) is marked by progressive change in settlement and agricultural organization, population increase and diversity due to migration, evolution of social hierarchies and burial traditions, particularly in formal cemetery contexts following the Conquest. Archaeological investigations of Romano-British burials have revealed differential burial treatments and attitudes toward the dead. Decapitation burials are the most common and diverse form of differential burial representation in this period. Theories suggested for sacrifice, including infanticide, penal execution, trophy taking, fear of the dead, or veneration practices toward individuals of presumed low, criminal, foreign, or slave statuses in Roman society. In addition, it has been suggested that the known decapitation practices stem from internal cultural development with little foreign influence from elsewhere in the Roman Empire. However, these interpretations have been based mainly on assumption rather than evidence from the archaeological contexts, and have yet to be systematically approached from the perspective of the archaeology of difference. This paper will use a multi-scalar holistic approach combining mortuary, bioarchaeological, and biochemical (strontium, oxygen, nitrogen, and carbon) analyses to test the idea that decapitated individuals in Roman Britain were associated with a single set of social norms by their communities, and address whether the presence of foreign individuals may have informed the practices of decapitation. Drawing on multiple lines of evidence may illuminate previously overlooked social and biological patterns linking cultural behaviors and diverse ideologies of those individuals on the fringes of Roman society during the “migration period”. Through the application of the available archaeological, conceptual, and physical evidence and techniques, our reconstructions of how ancient populations conceived of themselves and each other in Roman Britain will become more complete.

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TH1-33 Abstract 04

Working bone and antler at Star Carr: Gaseous technology in space and time

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Co-author(s) - Little, A., United Kingdom
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Co-author(s) - Conneller, C., United Kingdom

Abstract

Late, we present preliminary results of a new 5-year research program that pursues the hypothesis that they found refuge in the coastal wetlands of southern Laos, the region immediately to the north of Campania. Long-standing Dutch geochronological research in this area has already shown the presence of a continuous sedimentary record for the period of interest, and the team recently identified, besides the Avellino volcanics ash bed, two more ash layers that will function as chronometric markers for a yet unknown period. Using a combination of archaeological, archaeometric and palaeo-ecological approaches, the Groningen/Leiden team is using these indicators to document the significant demographic, environmental and cultural impacts that are likely to result from the presence of the postulated Early Bronze Age refuge population in South Laos. 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.
Since its original excavation in the 1940s and 50s, the Early Mesolithic site of Star Carr has dominated discussions of o coseous technologies within the British Mesolithic, and made an important contribution to wider debates over the significance of bone and antler materials within the economies of Early Holocene Europe. However, due to the resolution of on-site recording in the 1940s, and subsequent conservation and curation of the original finds, many questions concerning the precise character, context and duration of bone and antler working at the site have remained unanswered. The recent, ERC-funded excavations at the site have yielded an extensive assemblage of bone and antler artefacts, the context of which has now been fully recorded and analysed for the first time. This paper will present the results of these new investigations at Star Carr, combining contextual and spatial data with traceological analysis and microwear studies to allow an unprecedented discussion of the ways in which antler barbed points, antler headdress, elk antler macroliths, bone bodkins and aurich bone scraping tools were made, used and deposited at c.9000 cal. BC in North Eastern Britain.

The development of Slavic archaeology in Germany is closely connected to political history. Thus, with the political turn in 1990 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. The activity patterns were already known for every group, especially about the loads to the lower limbs. Femoral cylindroids were obtained by Multisector 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 second moments of inertia for two cylindroids have been assessed. This latter method has no evidence in current literature and its utility is object of study by our group. The analysis of the outcomes has shown that this methodology is able to give a good discrimination of the samples in respect of the different levels of mechanical properties 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.

The recent, ERC-funded excavations at the site have yielded an extensive assemblage of bone and antler artefacts, the context of which has now been fully recorded and analysed for the first time. This paper will present the results of these new investigations at Star Carr, combining contextual and spatial data with traceological analysis and microwear studies to allow an unprecedented discussion of the ways in which antler barbed points, antler headdress, elk antler macroliths, bone bodkins and aurich bone scraping tools were made, used and deposited at c.9000 cal. BC in North Eastern Britain.

The investigation of Early Slavic sites in North-Eastern Germany in the last 25 years. A review

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 reconorganisation of research. Dendrochronological data played a major role, especially in the discussions of two crucial issues: 1) the immigration of the Slavs between the rivers Elbe and Oder and 2) the dating and historical context of the numerous Slavic ringforts. Analyses of ceramics remained another important research topic. This period of intense investigations and acute debates came to a certain end at the turn of the millennium, when contemporary directions in archaeology are often focusing on research topic. This period of intense investigations and acute debates came to a certain end at the turn of the millennium, when contemporary directions in archaeology are often focusing on research topic. This period of intense investigations and acute debates came to a certain end at the turn of the millennium, when contemporary directions in archaeology are often focusing on research topic. This period of intense investigations and acute debates came to a certain end at the turn of the millennium, when contemporary directions in archaeology are often focusing on research topic. This period of intense investigations and acute debates came to a certain end at the turn of the millennium, when contemporary directions in archaeology are often focusing on research topic. This period of intense investigations and acute debates came to a certain end at the turn of the millennium, when contemporary directions in archaeology are often focusing on research topic. This period of intense investigations and acute debates came to a certain end at the turn of the millennium, when contemporary directions in archaeology are often focusing on research topic. This period of intense investigations and acute debates came to a certain end at the turn of the millennium, when contemporary directions in archaeology are often focusing on research topic. This period of intense investigations and acute debates came to a certain end at the turn of the millennium, when contemporary directions in archaeology are often focusing on research topic. This period of intense investigations and acute debates came to a certain end at the turn of the millennium, when contemporary directions in archaeology are often focusing on research topic. This period of intense investigations and acute debates came to a certain end at the turn of the millennium, when contemporary directions in archaeology are often focusing on research topic.
How clustered were the settlements really?
A case study on the Gätahöyük West Mound

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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 Gätahöyük 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 Gätahöyük experienced fundamental changes in its socio-economic makeup, which are expressed in alterations of the settlement layout and organization. In the uppermost building levels of the Neolithic East Mound the settlement transformed from a tightly clustered and large agglomeration of houses into a series of individual houses or house clusters with open areas between them. At the same time, the tightly integrated social structure that characterized the site before 6500 BC loosened when households started to be economically more independent. During the following Early Chalcolithic period (ca. 6000-5500 BC), there seems to have been a return to dense clustering on the West Mound, suggesting another change in social structure. However, ongoing work on the formation processes of the built environment on the West Mound questions whether the buildings were actually in use at the same time, which provides a new perspective on the use, function and meaning of settlement space of Neolithic and Chalcolithic settlement mounds.

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.
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. Popontova) and Romania (e.g. Petrele, Suchate) 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 functions of these areas. Further research will focus on analysing these variables in searching for rules and exceptions, with the help of GIS analysis techniques. The main advantage of GIS approach is the ability to model and visualise spatial trends that would be hardly noticed and time consuming if only traditional methods were used.

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

TH1-34 Abstract 08
Experience, organisation and identity within the nucleated broch villages of Northern Scotland
Author - Gal, Emily, University of St Andrews, St Andrews, United Kingdom (Presenting author)
Keywords: Brochs, Iron Age, Scotland
Presentation Preference - Oral

This paper will explore the Iron Age nucleated ‘broch-villages’ of northern Scotland and their significance within the wider settled landscape. Brochs are a well-recognised drystone domestic structure in late prehistoric northern Scotland, with distributions extending across mainland Scotland and the Northern and Western Isles. Interestingly, the brochs of Orkney, Caithness and Shetland are often directly associated with nucleated ‘villages’ consisting of a number of smaller structures, within an encircling boundary. These structures took a variety of forms, in a radial or non-radial arrangement around the broch, with entrances often facing inwards. Archaeological evidence suggests that they were primarily domestic in nature, although some sites have revealed evidence for the housing of livestock, metalworking, and other craft activities. Most were equipped with standardised furnishings including hearths and stone-lined tanks.

The spatial organisation and purpose of these villages with the monumental broch as their focal point is investigated with reference to archaeological evidence and theoretical approaches, resulting in a deeper understanding of social organisation and organisation of society. Beginning with a comparison of contemporary regional settlement types, prescribed movement around the nucleated settlements will then be explored (e.g. Foster 1988), as well as social relations and interaction in these architecturally-crowded settlements. Through the consideration of a number of relevant case studies it is suggested that over time social, economic and political networks and organisation reflected in nucleated settlement patterns, and that nucleation and isolation may have developed. Additionally, it could be argued that such settlement dynamics represent later prehistoric regional power structures which were to develop into the historic period. A number of relevant case studies spanning northern and Atlantic Scotland will be discussed, namely from Caithness, Orkney and Shetland.

TH1-34 Abstract 09
Kernave Town in 13-14th Centuries: Social and Cultural Pattern of Community
Author - Dr. Vengalis, Rokas, Lithuanian History Institute, Vilnius, Lithuania (Presenting author)
Co-author(s) - Dr. Vėlius, Gintautas, Administration of the State Cultural Reserve of Kernave, Kernave, Lithuania
Keywords: community organization, The Middle Ages, towns
Presentation Preference - Oral

The Eastern Baltic region in a European context is distinguished by its peculiar historical development. For a long time, there was no state, no Christianity and no towns here. Small, isolated, poorly stratified agricultural communities lived here till the 13th century. German Knights founded the first medieval towns in the margins of this region in the 13th century. Meanwhile, the Lithuanian state emerged on the basis of the pagan tribes (Lithuania was christened only in 1387) and the first political community. Archaeological and interdisciplinary research allows the reconstruction of the socio-economic model of medieval Kernave. The most important archaeological objects of that period in Kernave are a defensive system of five hill-forts, the upper terrace 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 artefacts connected with more intense agricultural activity found in any of the investigated locations, indicating the non-agrarian character of the community. Furthermore, these investigations illustrate the socio-economic complexity of this society – there are obvious cultural and confessional differences of Kernave residents in different town areas. The artefacts discovered in the lower town are clearly of local Baltic origin, whereas the majority of artefacts discovered in the upper terraces are continuations of the Slavic jewelry traditions. It may be that two different Hamar communities (in Kernave and Cemutis) were isolated from each other by the river and that trade contacts existed only occasionally.

TH1-34 Abstract 10
Uncovering Medieval Urban Planning: the case of Oslo and Magnus Lagabøte
Author - Oldham, Mark, Norwegian Institute for Cultural Heritage Research, Oslo, Norway (Presenting author)
Keywords: Medieval, Oslo, Planning
Presentation Preference - Oral

Oslo is currently undergoing an urban transformation, with new city districts and transport infrastructure being constructed. One such project, the new Follo Line railway, has provided archaeologists at the Norwegian Institute for Cultural Heritage Research the opportunity to excavate a large part of the medieval city. This paper will take inspiration from the current new wave of city planning to examine Norway’s first planning law, Magnus Lagabøte bylov, in the light of the ongoing archaeological excavations. Issued in 1276, Magnus Lagabøte bylov regulated both the use of space and behavioural practices, aiming to exercise control over both cyriphug and populace. Here, we aim to investigate the extent to which the various articles in this piece of legislation can be identified in the archaeological record. Can ‘good citizens’ be recognised, or is there evidence for a gap between de jure and de facto practices? This paper will hence also critically examine the relationship between the written record and the archaeological record, as well as consider how top-down planning instructions are negotiated, amended and, perhaps, subverted locally.

TH1-34 Abstract 11
Emergent Complexity and Neolithic Settlement Nucleation on the Great Hungarian Plain
Author - Gyucha, Attila, University at Buffalo, Buffalo, United States of America (Presenting author)
Co-author(s) - Parkinson, William A., The Field Museum, Chicago, United States of America
Co-author(s) - Yerkes, Richard W., Ohio State University, Columbus, United States of America
Keywords: Great Hungarian Plain, 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 nucleated settlements. This work was performed through the Partnerships in Priority Areas Program - PN II, developed with the support of MEN - UEFSCDI, project no. PN-II-PT-PCCA-2013-4-2352.
TH1-34 Abstract 12
Nucleated settlements in the Eneolithic of south-eastern Poland?

Author - Dr. Nowak, Marek, Institute of Archaeology, Jagiellonian University, Krakow, Poland (Presenting author)
Co-author(s) - Hoijs, Magdalena, W. Szadz Institute of Botany Polish Academy of Sciences, Krakow, Poland
Keywords: Eneolithic, large settlements, south-eastern Poland

In the middle of the fourth millennium BC, large settlements - tells, hilltop sites, fortified settlements - are ubiquitous phenomena in the Bronze Age of Europe.

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 13
Organizational variability of Bronze Age nucleated settlements in Hungary: a long-term approach

Author - Szeverényi, Vajk, Hungarian Academy of Sciences, Budapest, Hungary (Presenting author)
Co-author(s) - Kovács, Gabriella, Hungarian Academy of Sciences, Budapest, Hungary
Keywords: Bronze Age, fortified settlements, Hungary

Large, nucleated settlements – tells, hilltop sites, fortified settlements – are ubiquitous phenomena in the Bronze Age of Europe and specifically the Carpathian Basin. Recent research on micronegative settlement patterns in Hungary has revealed a great variety of such settlements in various regional contexts with apparently varied internal structure and connections to the wider social and natural landscape. Building on an earlier paper where we reviewed the history of Early Bronze Age and Middle Bronze Age fortified settlements in Hungary, the aim of our presentation is to provide an analysis of the changes of such nucleated settlements throughout almost 2000 years of the Bronze Age (2600-2500-800/700 BC) with regard to their internal structure, built remains, and internal and interregional organization principles. Data on changes in settlement structure and changes in the locations of major centres and populated areas will provide a wealth of information on the socio-economic history of Bronze Age communities in Hungary.

Our goal is to examine the settlement networks in this longer period in the central, southeastern and southwestern part of the Carpathian Basin/Hungary, with special attention to (1) the function and position of the fortified sites in the landscape, (2) their role within the settlement or economic units of the periods and (3) their role in the cognitive and symbolic systems of the period, to decide whether their foundation was accidental or the result of a premeditated/intentional decision.

TH1-34 Abstract 14
Spatial patterns of Nuragic sanctuaries inside settlements and in the countryside of Sardinia

Author - Dr. Beusing, Ruth, Römisch-Germanische Kommission, Frankfurt, Germany (Presenting author)
Keywords: GIS analysis, landscape archaeology, Nuragic culture

Sardinian Bronze Age and Early Iron Age Nuragic monuments are renowned as impressive examples of a community effort. Nevertheless, the motivations and social organisation of the communities behind the joint efforts in creating those enormous and sophisticated buildings are still debated and barely understood. The Nuragic civilisation developed in the Middle Bronze Age and Early Iron Age, from about 1900 – 730 BC (MBA 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 monotor 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 Nuraghs, but also in new places in the landscapes.

In contrast, nuraghe 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 wide area of giant tombs and in megalithic tombs. From the beginning of the LBA a preference for fonts and wells can be observed, furnishing in water sanctuaries of finest mansion 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 (so-called ‘federal sanctuaries’, e.g. Santa Christina- Paulatino or Santa Vittoria – Sanli), others are more domestic, only suitable for smaller congregations. In the LBA the collective workforce seems to be shifted from the Nuraghes to the sanctuaries. Additionally, a change in the skills and preferences of mansion can be observed. Though the actual building of the Nuraghes ceases, they survive partly in conversion and also as sculptured models of stone that was treasured in many of the sacral and/or meeting places. The refined religious practices observed somehow display changes in collective understanding of their surroundings 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 reseches the interaction of the sanctuaries with different natural and cultural aspects within a GIS. The characters to water, other resources and infrastructural aspects are investigated, as well as the clusters of settlements they relate to, but also to other cultural patterns such as votive deposits (differentiating local and imported materials). In this study cases 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. Scholar claims models from elite structures to egalitarian systems. The study finally discusses the results in regard to different theories currently debated.

TH1-34 Abstract 15
Chiefdoms’ farmsteads from the Hallstatt period - architecture and structure

Author - Dr. Grlak, Tomasz, Wrocław University, Wrocław, Poland (Presenting author)
Keywords: Hallstatt period, metrological analysis, spatial organization

In recent years, in the area of lower Silesia in Poland, several structures dated to the Hallstatt C period, called chiefman’s farmsteads were found. They were settlements composed of several buildings arranged around an empty square enclosed by a palisade or a ditch. The number of discovered sites suggests that this was a commonly used form of rural space organization. The comparative analysis showed that these settlements were characterized by repeating structure and layout. A metronological analysis was also undertaken. It was found that a repeating length measurement unit, which was approximately 0.785 meters, was applied for both the layout of individual buildings and as far as the arrangement of the whole farmstead. It was also noted that the layout of the buildings consisting modules were used: a square with side of 4 units long and a rectangle with sides of 4 x 3 units long. Meanwhile, for determination of the farmstead size only square modules with side of 12 x 12 units were used. Similar rules of spatial organization have also been used in the construction of ornaments on pottery and objects of everyday use, the different being that a triangle was the dominant figure. In both cases modularity was the basic paradigm of the style. It is also possible to observe the same rules in other regions inhabited by people of the Hallstatt culture. The genesis of this style is uniquely associated with the culture of antique Greece of the geometric period. The main question concerns the purpose of
TH1-34 Abstract 16

Settlement mounds: A long-term analysis of the settlement organization in the Iron Age

Author: PhD Haue, Niels, Historical Museum of Northern Jutland, Aalborg, Denmark (Presenting author)

Keywords: Iron Age, settlement mounds, socio-economically organization

Presentation Preference: Oral

The settlement mounds in Denmark date to the Pre-Roman Iron Age and the Roman Period, and the excavation of these complex village sites offers detailed analysis of the long-term social organization of rural villages in South Scandinavia. The paper will present a case study from northern Jutland, Denmark to discuss how spatial divisions within nucleated settlement mounds could regulate the socio-economic patterns and dynamics of prehistoric villages. In particular, the paper focuses on the ways that the best “addresses” of the village could maintain their dominance for several centuries, and how architecture was used to express and manipulate identity within the village.

TH1-34 Abstract 17

Structured villages from the Early Roman Iron Age in central-southern Jutland, Denmark

Author: Dollar, Scott, Sønderkov Museum, Brgeup, 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 unified 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, but there are also similarities. This may indicate that there were underlying social-cultural norms or rules in how these village communities should structure their settlements and farmsteads which were maintained by these communities over several generations. In this paper, I will present several Early Roman Iron Age settlements excavated by Sønderkov Museum in a limited geographical area of southern-central Jutland.

TH1-34 Abstract 18

What does settlement layout tell about the community?

Author: PhD Yalman, Emin, Culture Awareness Foundation Istanbul, CIC Center for International Heritage, Istanbul, Turkey (Presenting author)

Keywords: ethnoarchaeology, interpretation, settlement

Presentation Preference: Oral

The layout of a settlement reflects long-term processes and mutual interactions that occur among many variables. Sometimes the factors that shape a settlement are the result of various deliberate decisions, but indirect effects also play a role in these processes in archaeological sites, 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

such structures. Due to the relatively small size of palisades and ditches enclosing chieflets’ farmsteads, their defensive function seems rather unlikely. The purely prestigious function cannot be ruled out. Assuming that they were used as cattle kraals, horses breeding cannot be ruled out either. The term chieflets’ 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 Wójkowice 15. Both a chieflet’s farmstead and an open settlement organized along a communication route were discovered here. No significant difference between finds from the two areas was noted. On the contrary, they were characterized by high similarity. In terms of forms of features related to production no major discrepancies were noted either.

The question remains why two groups of people living next to each other opted for completely different forms of spatial organization.

TH1-34 Abstract 19

The creation of powerful places in Etruria

Author: Dr. Stoddard, Simon, University of Cambridge, Cambridge, United Kingdom (Presenting author)

Keywords: Etruria, Genealogy, 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 countervailing political genealogies that apparently contrasted with the apparent centralisation of power in the large centres. The paper will examine the resolution of this tension by matching emerging evidence from the nucleation of settlement (layout and organisation) with evidence for succession amongst political elites and their individual participants (the sequence and content of graves). The variation of this pattern at an interregional level will be added to the complex, often hierarchical, pattern of Etruria.

TH1-34 Abstract 20

Communication network structure in Latium vetus and Etruria: Two faces of the same coin?

Author: Dr. Fulminante, Francesca, University Roma Tre, Roma, Italy (Presenting author)

Co-author(s): Dr. Guidi, Alessandro, University Roma Tre, Roma, Italy

Keywords: central Italy, communication networks, urbanism

Presentation Preference: Oral

Communication infrastructures are emerging complex structure: they are not completely random, neither are they entirely planned according to a predefined project, especially when there is a 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, a newly developed Network approach this paper shows the similarities and differences between the two regions and contributes to explain why in the Iron Age 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 catalhöyük

Author: MA Honecki, Jędrzej, Adam Mickiewicz University, Kościan, Poland (Presenting author)

Keywords: catalhöyük, Hellenistic, settlement

Presentation Preference: Oral

catalhöyük 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. Catalhöyük played a special role. Excavations at the site revealed strata and remains of settlement from Bronze Age, Phrygian, Hellenistic and Muslim Periods. Evidence for the first and the last periods were relatively scarce. However, finds and strata from the Phrygian and Hellenistic Periods indicate uninterrupted settlement from the 9th to 2nd century. Because of this, catalhöyük 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 Câștâţâyl. 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. Pusztaí Péter, University of Miskolc, Miskolc, Hungary (Presenting author)
Co-authors: Pusztaí Tamás, Herman Ottó Museum, Miskolc, Hungary

Keywords: Bronze Age, Medieval Age, comparative study, settlement structure and using of space

Presentation Preference: Oral

Comparative studies on built environments between prehistoric and historic times at different geographical scales have yielded important results in various parts of the world. In particular, analyses of complementary datasets contributed to a better knowledge of similarities and differences in socio-economic developments at the local scale. However, less effort has been devoted to the matter concerning how abundant historic datasets can facilitate in understanding prehistoric settlement dynamics.

The aim of our paper is to examine settlement nucleation processes at the regional scale during two periods in Northeast Hungary. Two geographically distinctive, neighbouring regions, the Borsod Plain and the foothills of the Bükk mountains, will be included in this study, with particular focus given to the settlement patterns for the specific periods of the Bronze Age (between 2200 and 1600 BC) and the Middle Ages (14-15th centuries AD). We will explore the topography, settlement networks, space and land use, as well as house construction methods in a comparative regional and temporal framework. The economy of these two periods is based on agriculture and the exploitation of the immediate environment. The historical and cartographical sources, landmark inspections, and the well-known road-networks make possible to determine central sites contra villages in the 14-15th century AD in the micro-region. Based on the analysis of building methods, communal spaces, spatial organisation of the homes and the villages, and economic activities in these two periods, we propose a model that will determine critical factors about the Bronze Age settlement pattern (roads, central places, distribute places and activities between settlement).

TH1-34 Abstract 23
An exemplification of the socio-political make-up of the Late Bronze Age polities from Hungary

Author: Dr. Pusztaí Péter, Móra Ferenc Múzeum, Szeged, Hungary (Presenting author)
Co-authors: Pusztaí Tamás, Herman Ottó Museum, Miskolc, Hungary

Keywords: Bronze Age Hungary, Fortified settlement, Landscape, hierarchy

Presentation Preference: Poster

In the area of the Békés-Csanád loess table and the Batánit, 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-Rákos-Čapcsávár and its hinterland. This small, 42 hectare large fortified site is investigated within the framework of a wider, microregional settlement study and will be interpreted in terms of the socio-political make-up of the Late Bronze Age polities.

TH1-34 Abstract 24
More than meets the eye: burial monuments and "landscapes of power" in late Iron Age Britain

Author: Minkevičius Karolis, Vilnius University, Vilnius, Lithuania (Presenting author)
Keywords: GIS, Iron Age, Landscape Archaeology

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 the “Landscapes of Power”. Some of them were used to visually dominate the social and political landscapes of the late Iron Age oppida. This hypothesis has been explored using GIS-based visibility analysis. By presenting case studies of Folly Lane, Lexden and Stanway it is argued that the role these burial monuments was not only to pay tribute to the deceased, but also to assist in establishing, developing and maintaining social and political power at the oppida.
BUILD WITH MUD IN THE NEOLITHIC: TECHNICAL CONSTRAINTS AND CULTURAL CHOICES

Saturday, 3 September 2016, 09:00-13:00
Faculty of History, Room 217

Author - Dr. Jilijot, Luc, University Paul Vaillat Montpellier 3, Montpellier, France (Presenting author)
Co-author(s) - Molist, Miquel, Universitat Autonoma de Barcelona, Barcelona, Spain
Co-author(s) - Peinetti, Alessandro, Università de Bologna, Bologna, Italy

Keywords: earthen architecture, wattle and daub, cob, mudbrick, plaster, technology, household, dwelling, Neolithic.

Presentation Preference - Regular session

At the beginning of the Neolithic in the Middle East, the hand modeled mud was a structural material involved in the houses building. In various parts of Europe this material is gradually used, in the Balkans but also in the Neolithic of the Western Europe, in Italy, France or Spain for example. Earthen materials are used for multiple functions: as cob or mudbrick to realize uprising load bearing masonry, as daub to cover wooden walls, as plaster for walls or constructed floors and to shape containers, furniture or grain silos as well. This session aims to present the developments of the archaeological research on this subject, focusing on rural settlements and villages, in particular during the Neolithic. Contributions about Neolithic/Neolithic transition and Bronze age are welcomed as well. We propose to raise the question of the function of these various earthen constructions and to raise the question of determinism governing its use in competition or in complementarity with stone and wood, through models involving technical constraints and cultural choices. Papers can be also focused on the relationship between raw materials (selection and exploitation), technical choices and dwelling function. Spatial analysis, ethnoarchaeological, theoretical and experimental studies are encouraged.

TH1-35 Abstract 01
Some remarks about the role of environment and society in building technology

Author - Peinetti, Alessandro, UMR 5140, Paris, France (Presenting author)

Keywords: Building technology, Earthen construction, Ethnoarchaeology

Presentation Preference - Oral

Most often, the archaeologist underline the role played by environmental constraints in the elaboration of architectural models, in particular for the employed raw materials. This paper wants to explore the complex relationship between environment, cultural choices, building traditions, socio-economic context and technical constraints, presenting ethnoarchaeological and archaeological examples of earthen constructions in different European contexts. First of all, the observation of modern wattle and daub in northern France allows some remarks about the relation between employed raw materials and techniques. The results of the Neolithic wattle and daub analysis from different sites in Piemonte (Northwest of Italy) stress the role played by tradition in building practices. Some case-studies from the Italian Bronze age, focused on earthen walls and floors building techniques, could be useful to understand some cultural choices, guided especially by socioeconomic needs. In prehistoric contexts, as in vernacular architecture, the employed building materials are often local and show a good adaptation to the ecological environment. That’s a sort of constraint, but the identification of raw materials is just a first analytical level for the archaeologist. We need to make an effort and explore in deep the relationship between raw materials, technical choices and social context. In fact, each peculiar technical solution is often a solution among various other possibilities. The aim is to turn the archaeologist reasoning and stress the technical variability in our approaches, to show the limits of the environment-only hypothesis, in the history of the role played by cultural choices in the main failure of some ancient communities.

TH1-35 Abstract 02
The Aftermath of Mud Houses: Degradation and archaeological site formation

Author - Dr. Friesem, David, University of Cambridge, Cambridge, United Kingdom (Presenting author)

Keywords: archaeological site formation, ethnoarchaeology, mud structures degradation

Presentation Preference - Oral

A major interest in archaeological research of sedimentary sites since the Neolithic is associated understanding and reconstructing human activity which took place within archaeological mud structures. Yet, rarely archaeologists encounter mud structures preserved to similar conditions as they were during their initial habitation phase in the past. It is therefore crucial to understand the post-depositional processes involved in mud structure degradation and how they form the contemporary archaeological setting. This paper presents an ethnoarchaeological study, conducted in recently abandoned mud structures in two distinctive environmental regions: arid South Israel and temperate Northern Greece. The taphonomy of earth floors, mud brick walls, wattle roofs and microscopic activity remains was studied. Field observations and excavations were coupled with various microscopic laboratory-based analyses. The paper supplies guidelines to the identification of occupation deposits, occupation deposits, differentiated 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.
archaeological features and layers relating to deterioration processes of built features. Burned daub fragments were entirely collected during the excavation as well. These materials are first analyzed from a macroscopic point of view. Technological analysis can be linked to the functional aspect of each structure and activity areas, to highlight both technical choices and socio-economic behaviors.

TH1-35 Abstract 05
Hearth structures and plaster from the Bronze Age settlement of Oratino: the dark side of the mud
Author - Dott. D’Oronzo, Cosimo, Università Sapienza, Roma, Italy (Presenting author)
Co-author(s) - Cepal, Valentina, Dipartimento di Scienze dell’Antichità, Roma, Italy
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The Bronze Age site of Oratino – La Roccia is located on a small terrace beside the southern slope of a rocky hill that dominates the eastern side of the high Bilerno river valley, along an important route that penetrates the inland region of central southern Italy from the Adriatic coast. The research conducted so far on the site allows us to recognize different moments of occupation mainly from 15th and 12th century B.C. During the final phase of occupation a series of six layers, characterized by the presence of hearths and cooking structures is attested. They can be related, mostly, to food preparation/treatment and consumption activities, repeated in a short lapse of time. Moreover, these activities were performed in an open area and are not linked to specific domestic structures, but probably in a collective sphere, by a restricted number of people.

Several plaster fragments, related both to the cooking platforms and with other accessory structures, were found in these layers of occupation.

A broad use of mud for coatings or covers of huts and an exploitation of raw materials macroscopically different for the manufacture of small structures, as cooking platforms, is observable from the macroscopic analysis of morphometrical and technological features of archaeological materials. The application of compositional analyses, as pathogenic analyses on the sections will allowed to characterize composition and firing temperatures allowed to identify potential sourcing areas of clays that have been compared with archaeological material composition to establish the provenance of raw materials.

TH1-35 Abstract 06
Technical evolution of adobe building materials and work specialisation at Ra’s al-Hadd HD-6 (Oman)
Author - Dr. Azzar, Valentina, UMR 7041 ArScOn - Vepmo, Nantes Cedex, France (Presenting author)
Keywords: Adobe composition, Grain size distribution, Work specialisation, Early Bronze Age, Oman
Presentation Preference - Oral

Earthen materials are introduced in Oman at the end of the 4th millennium BCE, when a series of technological evolutions mark the transition to the Early Bronze Age. The very beginning of such transformation, however, remains scarcely understood from the point of view of settlement life and activities, as the Haff period is mostly represented by thousands of graves, while very few settlements are known throughout the area. The site of HD-6 has been the object of a detailed large-scale excavation, showing both the emergence of solid architecture and a diachronic evolution in adobe building materials.

Aiming at a better understanding of such evolution, chemical-mineralogical and granulometric analyses of earthen building materials related to the different occupations of HD-6 have been performed on a series of samples. The results suggest that the differences in mud-brick fabrics were a result of mixing and tempering and are not indicative of different raw material sources. Together with the technical characteristics of building, such differences show the evolution of materials and methods of construction used on site, hinting at increasing specialisation of work and of the workforce.

TH1-35 Abstract 07
Clay, wood and stone - Neolithic architectures on the channel sea shore, at Lillemer
Author - Laporte, Luc, CNRS, Rennes, France (Presenting author)
Co-author(s) - Bizén-Jaglin, Catherine, CIfRAA, Saint-Malo, France
Co-author(s) - Wattez, Julia, INRAP, Paris, France
Co-author(s) - Gysoult, Jean-Noel, Université Nantes, Nantes, France
Keywords: Neolithic, architecture, mudbrick, stone

Presentation Preference - Oral

Shortly after Neolithic reach the channel shores, during the second half of the Vth millennium BC, massive earthen materials have been employed for the construction of a village surrounded by the salt marshes of the actual Bay of Mont Saint-Michel, at Lillemer. These have been used both for the walls and floors, and reflect serial phases of construction. Their preservation is also due to the construction of the banks of a causeway cay, burying previous architectures and surrounding the Hill’s foot, probably at the end of the Vth or beginning of the IVth millennium BC. Mudbricks and earthen materials were still in use otherwise the entry of the camp is now borded by standing stones. Wooden palisades and architectures close this stratigraphic sequence during the second half of the Vth millennium. Whether such changes could be inspired by technical constants, functional variability of the architectures or cultural choices will also be discussed in this paper.

TH1-35 Abstract 08
Arsantepe domestic architecture: households and technology in the Early Bronze Age
Author - Liberoni, Giovanna, Italian Expedition in Eastern Anatolia, Rome, Italy (Presenting author)
Co-author(s) - Avano, Corrado, Sapienza University of Rome, Rome, Italy
Keywords: Arslantepe, domestic architecture, Early Bronze Age

Presentation Preference - Oral

We present a study on the organization and use of space and on issues related to the domestic architecture of the Early Bronze Age settlements at the archaeological site of Arslantepe-Malatya, eastern Turkey. The extensive excavation (about 2000 square meters) provided us with the stratigraphic links with the previous and subsequent levels, allowing the analysis of different households and the reconstruction of a coherent and well-articulated housing model developed in the second half of the III millennium BC. Moreover, the continuity of the archaeological excavations from 1961 onwards made it possible to examine, through the “deconstruction” of entire settlements, not just the building materials and the techniques used in the construction of houses and facilities, but also the evolution over time of each structure. The construction-evolution-abandonment-destruction cycle of a compound thus acts as a pivot in the interpretation of the huge amount of data at our disposal.

Most often, socio-cultural factors such as family structure, the position of the various members, their basic needs and social contacts play a primary role in the formation of a house. The goal of this work is to shed light on the relationship between domestic architecture and space organization, recognizing the activities inside and outside of the houses and reconstructing the daily life of a given household maintaining regard to those bordering with it. To define the relationship between domestic architecture and organization of space we analyzed the variables that influence them over time. Hence, to unravel the social structure of the group we considered the architecture and the use of space as a single set that evolves in a horizontal (in space) and vertical (in time) way.

Our analysis is thus both structural, because it focuses on the architecture, the construction techniques and the facilities, and material, because it considers the function and location of the vegetal, animal and mineral finds that help to clarify the household subsistence economy. The interdisciplinary approach in recovering data follows the methodology of Salvatore Maria Puglisi, who started the Italian Expedition in Eastern Anatolia in 1961: alternative points of view and different theoretical approaches, using data coming from disciplines other than archeology, in this case architecture, ethnography and archaeometry.

TH1-35 Abstract 09
The end of the life cycle: destroying or burning dwellings in Copper Age
Author - Dr. Popovici, Dragomir Nicolae, National History Museum of Romania, Bucharest, Romania (Presenting author)
Co-author(s) - Hălău, C., National History Museum of Romania, Bucharest, Romania
Co-author(s) - Văcăroiu, P., History Museum of Ialomiţa County, Sibiu, Romania
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Co-author(s) - Lovin, V., Lower Danube Museum, Câmpia, Romania
Keywords: Copper Age, Dwellings destroying or burning, Osmiums culture

Presentation Preference - Poster

For the most part the researchers the house is the main important social, ideological and economic entity of the society in Copper Age in S-E Europe. The materials used to built, the form, the inner space structuring, were seen like being 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.

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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 garrigue 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 (Garon, 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 now methodologies are emerging thanks to the improvement and the adjustment of excavation methods specifically relevant for the study of mud construction materials. Boussargues (Argelliers, Hérault), located in the core of Hérault’s garrigues, contained wattle and daub vestiges directly associated to dry stone wall remains. They actually are roof elements (Chazelles, 2008). Fortbourisse (Villeveyrie, Gard department) is characterized by its dry stone constructions; although, the excavations revealed the presence of cob elements in the settlement, interpreted at that time as wall elements, with its wattle inserted in the stone walls used as foundation (Louis et al., 1947). Mud is also certified and used as a coating on dry stone walls at Jas Del Biau (Millau, Aveyron), and earth pads were identified on the spot (Jallot, 2000). On the La Vayrasère site (La Bastide-Pradine, Aveyron), unbaked clay may have been used as a binding agent between the rubble stones. And the walls have seemingly been raised with mud on the foundations (Fourné, Convertini, 2000).

Thus, the use of mud associated with stone constructions in karst environments can be seen in roofs, coatings, as binding agent, on foundation or in various layouts. The currently available data is not numerous enough to establish significant recurrences, yet new prospects are emerging. Does the use of mud in construction satisfy technical and/or cultural needs? What is the real impact of environmental constraints on the communities’ choices in the Neolithic era? These questions highlight too little explored 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 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 fields 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)
Co-author(s): PhD Kissas, Konstantinos, Ministry of Culture, Inspectorate of Antiquities of the Corinthia, Ancient Corinth, Greece
Co-author(s): Associates Papayannis, Thymio, Thymio Papayannis, Athens, Greece
Co-author(s): PhD Sanders, Guy, American School of Classical Studies, Athens, Greece

Keywords: Cultural Resource Management, Heritage, Landscape

Presentation Preference: Oral

An integrated collaborative master plan has been developed between 2014 and 2016 to protect, preserve and present the 6 square kilometer area that encompasses all the natural and cultural components of the landscape of Ancient Corinth, Greece. It comprises the ancient harbor at Lechaeum, the ancient city, and the site of the ancient Archeological Museum. The landscape has been divided into three parts: (a) the wetlands and ancient harbour facilities of Lechaeum 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 unoccupied nature zone of the slopes of the great fortified citadel of Acrocorinth. These remains cover 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 village of Ancient Corinth and its agricultural outskirts in which are situated the remains of the ancient city, and the archaeological museum.

TH2-02 Abstract 01
Who commits ‘heritage crimes’?

Author: Dr. Westphalen, Thomas, Landesamt für Archäologie Sachsen, Dresden, Germany (Presenting author)
Co-author(s): - PhD Kissas, Konstantinos, Ministry of Culture, Inspectorate of Antiquities of the Corinthia, Ancient Corinth, Greece
Co-author(s): Associates Papayannis, Thymio, Thymio Papayannis, Athens, Greece
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TH2-02 Abstract 03
Good Intentions and Bad Practice; conflicting values in heritage protection
Author - Campbell, Stuart, National Museums Scotland, Edinburgh, United Kingdom (Presenting author)
Keywords: Heritage: Crime, Heritage Management, Portable Antiquities
Presentation Preference - Oral

The concept of heritage crime is often summed up by the image of the experienced and professional looter, motivated by financial gain and with some level of technical knowledge. While this model may apply to high profile cases of looting this paper will concentrate on less obvious sources of harm to the historic environment, in particular that grey area where bad practice or carelessness on the part of an individual can cross the line into criminal behaviour. This paper will focus on cultural attitudes, or different cultural perceptions of harm and importance which can lead to damage being downplayed or not seen as serious on the part of the perpetrator. This paper draws on examples of working directly with members of the public who find objects, not least metal detector users, and will draw on experiences which are often not discussed or considered at policy level. This paper will assess the assumed role of the market in driving looting, arguing instead that much behaviour is driven by the concept of not being a ‘single actor’, the finder or looter also being a collector, and the desire being to keep rather than sell an object. Individual motivations include a complex mix of culture and misconceptions which might mean a site is damaged or an object not reported, often by individuals who act with good intentions. The cultural considerations which make an individual consider the law of little importance (while not considering themselves a criminal) will also be discussed. Running through all these issues are divergent and competing perspectives of why the past is important, and how legislation that seeks to protect the past may be perceived by third parties in a wholly different light.

TH2-02 Abstract 04
Museum Security: How big a threat is crime?
Author - Dr. Thomas, Suzia, University of Helsinki, Helsinki, Finland (Presenting author)
Co-author(s) - Grove, Louise, Loughborough University, Loughborough, United Kingdom
Keywords: Europe, Heritage crime, Museum security
Presentation Preference - Oral

Museums are an integral part of the cultural life of societies. Many house archaeological material, functioning as repositories for the archaeological record, as well as sites of public education and dissemination. In addition to their intangible value, many collections may also have considerable financial value, and pose a temptation to thieves. In recent years, high profile art thefts from museums, embassied 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 mini horn on display has been replaced by a replica. Museum security in Finland and England', Journal of Conservation and Museum Studies. Hardy, S. A. (2015) ‘Is looking-to-order ‘just a myth’? Open-source analysis of theft-to-order of cultural property’, Cogent Social Sciences 1:1. 1087110http://dx.doi.org/10.1080/23311886.2015.1087110

TH2-02 Abstract 05
The fight against archaeo-mafia: Museums, looting and destruction in Spain.
One research and development project
Author - Professor Yazez, Ana, Universidad Complutense de Madrid, Madrid, Spain (Presenting author)
Co-author(s) - Rodriguez Temiño, Ignacio, Conjunto Arqueológico de Carmona, Carmona, Spain
Keywords: Archaeological looting, Punitive power
Presentation Preference - Oral

In 2014, a group of archaeologists and lawyers began to work together in a research and development project, funded by the Spanish Ministry of Economy and Competitiveness. This research project was primarily aimed at improving the basis for an effective legal response against archaeological plundering. Archaeological looting represents a serious threat to the survival of fragile and vulnerable special heritage. This threat is deployed both in sites on land and underwater wrecks. In Western societies, this iniquitous property loss creates social alarm because of the common interest in this property. Therefore, public authorities are constitutionally obliged to prevent it, or at least, to try to do so.

However, in Spain the response provided by the State and the Autonomous Communities in the fight against archaeological looting seems to lack the sense of unity required. The inadequacy of many legal instruments, such as the Spanish Historical Heritage Act, other cultural legislation, and the Penal Code is very well known, as there are claims to reform this legislation. However, 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 the most important: the data on theft not: the filling of complaints about archaeological spoliation. At present, in Spain there is a tragic ignorance about what happens to these complaints in each region, how many are concluded, how many are not, and what the causes of each complaint are. From the collection and analysis of this data, the Project proposes improvement measures.

The project’s main objectives are:
A) To improve the response to archaeological looting, both on land and underwater, through the adoption of minimum standards by the agencies involved in the fight against this widespread social problem, made as a result of the research project.
B) To make public, a structured body of data from different geographical areas referring to the handling of complaints about archaeological looting from what, for the moment, are only available in administrative, judicial, police files that are difficult to access.
C) To provide tools to facilitate the fight against underwater and land archaeological looting, such as training the staff involved (members of the Security Forces of the State, judges, officials, managers, etc.), and social awareness. Improving the public response to archaeological looting involves ensuring access to these goods for future generations.

In this communication the most important research results conducted in recent years will be presented.

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 offenses. Proper implementation of any method could lead to positive results, however it is usually hard to find relatively efficient and at the same time speedy solution.

One of practical solutions of the problem has to do with enhancing awareness regarding protected archaeological artifacts and related issues because it would not be correct to assume that legislative acts already contain all the information needed for different audiences (e.g. byers and traders of artifacts, persons who are interested in history, law enforcement officers etc.). Thus in December 2015 several cultural, law enforcement institutions and other institutions controlling turnover of cultural objects, under the guidance of Latvian Academy of Culture, started the development of “Digital catalog of Latvian archaeological artifacts at risk”.

The “Digital catalog of Latvian archaeological artifacts at risk” contains graphic and textual information regarding the most endangered national archaeological artifacts, as well as other information deemed to be useful for different audiences which could come into contact with archaeological artifacts.

The presentation will give insight into aspects of illegal obtainment of Latvian archaeological artifacts, characterize the “Digital catalog of Latvian archaeological artifacts at risk” and opportunities of its usage.

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**TH2-03**

**TELLING STORIES: ARCHAEOLOGICAL MUSEUMS, HERITAGE AND RESEARCH CENTRES: ACHIEVEMENTS AND FUTURE PROSPECTS**

**Saturday, 3 September 2016, 14:00-18:30**

**Faculty of Philosophy, Room 107**

**Author** - Hall, Mark, Western Isles Council, Scotland, United Kingdom

**Co-author(s)** - Lima, Jette, Moesgaard Museum, Denmark

**Keywords**: heritage, interpretation, museum

**Presentation Preference** - Regular session

Recent years have seen a swathe of new museums and heritage centres opening and exploring aspects of Europe’s past through a rich diversity of both sites and finds. These include, most recently, the Moesgaard Museum, Aarhus, Denmark and before that, for example, the LWL Museum for Archaeology, Herne, Germany; ARCHÉA, Archéologie en Pays de France, nr. Paris; Lödöse Museum, Sweden (now 50 years old); South Tyrol Museum of Archaeology, Bolzano, Italy; the Museum of Innocence, Istanbul, Turkey; Creswell Crags Museum & Visitor Centre, Nottinghamshire, UK and the Shetland Museum, Lerwick, UK. For this session we want to encourage a Europe-wide response that will bring together a cross-section of these projects, both opened and closed and those still at the planning stage, to facilitate a sharing of success and failures. We also want to consider how the future might look for this critical practice that creates a space where science, curation and citizen engagement interact. We want to explore scale, diversity, purpose, financing, community engagement, local vs. tourism and archaeological value through a combination of papers, some of them case studies and some of them thematic.

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**TH2-03 Abstract 01**

**ICOMOS’ Charter on Interpretation of Cultural Heritage Sites: The Global Strategic Approach**

**Author** - Hodges, Sue, ICOMOS ICIP, Port Melbourne, Australia (Presenting author)

**Co-author** - Deufel, Bonnieg, 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.
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.

Located in Tranekaer Castle, a UNESCO World Heritage site, Moesgaard Museum showcases the history and culture of the northern part of Scandinavia and northern Europe. It has a rich collection of artifacts that span from prehistoric times to the modern era. The museum is known for its innovative approach to storytelling and engagement, using interactive exhibits, multimedia displays, and engaging narratives to bring history to life.

The museum is dedicated to making history accessible and relevant to a diverse audience. It offers a range of programs and events, including guided tours, workshops, and family days, to cater to all ages and interests. Whether you’re a history enthusiast, a student, or simply curious about the past, Moesgaard Museum offers something for everyone.
Caring for the Vilnius Museum of Antiquities

Author - Prof. McReynolds, Louise, University of North Carolina, Chapel Hill, USA (Presenting author)

Keywords: Cultural Identity, Cultural Policy, Etruscan Pottery

Presentation Preference - Oral

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 played by museums in the challenge between nationalism and imperialism in the nineteenth-century Russian empire. Debates about display and curation were central to the rise of archaeology in that epoch, and in Russia, they were also closely associated with the fifteen archaeological congresses, meeting every three years from 1869, were the singular academic and/or professional conferences held in Tsarist Russia; the 9th was held in Vilnius in 1893.

In the 1840s, when archaeology was first beginning to blossom, beginning as more of a vocation than a science, Count Eustachy Tyszkiewicz and his brother Konstantin moved from simply collecting Italian art to excavating approximately 200 barrows around their native Łogoszyk, in present-day Belorusia. The Russian word for what we call “amateurs” translates literally as “lovers,” and this better captures the sense of this first generation of essentially noblemen who combined a passion for archaeology with similar fascination with ethnography and history. In 1842 the Tyszkiewich brothers opened three rooms in one of their palazzi into the first local Museum of Antiquities, more than a curiosity shop. It was visited by a few hundred 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 Moscove’s Rumiantsew Museum, a critical repository of historical artifacts.

One of the first orders of business following the rebellion was to re-curate the museum. Count M. N. Murawski, who would receive an honorary “Vilenski” added to his surname in recognition of the fervor with which he instigated the de-Polonization of the Northwestern Region (Lithuania and Belorusia) 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

Author - PhD student Pica, Valeria, University of Malta, Roma, Italy (Presenting author)

Keywords: Cultural Identity, Cultural Policy, Etruscan Pottery

Presentation Preference - Oral

A forty years long journey allowed the return to the place of origin of an admirable work, which has reinvestigated the fortunes of a museum and of a local community. The Euphronios or Sarpedon krater, purchased by the Metropolitan Museum of Art for the substantial price of one million dollars in 1971 after adventurous vicissitudes that led the artwork from Cerveteri to Zurich and then to New York. A legal controversy invoked the MET and more recently it restored the ownership of the krater to Italy in 2006, together with twenty other objects that returned back to their original sites. Among them, the Euphroneios krater is another object 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 Euphroneios works were displayed in the temporary exhibition Hosto: Recovered Masterpieces at the National Museum of Villa Giulia in Rome and they were supposed to enter the permanent collection.

The location of the kylix and the krater in Cerveteri is the result of collaboration between the City of Cerveteri, the Southern Lazio and Etruscan Archaeology Superintendence and the Lazio Region. On the tenth anniversary of the UNESCO recognition of the Etruscan Necropolis of Banditaccia (2004), the two kraters have been transferred for a month at the Centro National Museum, and thanks to a significant increase in visitors, the exhibition has been extended until December of that year. On December 18th 2014, to close the decade of celebrations, the Superintendent accepted the request of the City of exposing the kylix also close to the Banditaccia necropolis deployed along her boundaries. Nowadays the most famous tourist attraction in the area is the Banditaccia necropolis, declared UNESCO World Heritage Site in 2004.

In the past centuries, many works were dug out from the necropolis and then quite easily sold on the international art market: what actually happened to the Euphroneios krater, purchased by the Metropolitan Museum of Art for the substantial price of one million dollars in 1971 after adventurous vicissitudes that led the artwork from Cerveteri to Zurich and then to New York. A legal controversy invoked the MET and more recently it restored the ownership of the krater to Italy in 2006, together with twenty other objects that returned back to their original sites. Among them, the Euphroneios krater is another object 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.

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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 - Grath Danielson, Benjamin, Pizaa kulturav, Fors, Sweden (Presenting author)

Keywords: Community archaeology, Empowerment, Heritage as heritage

Presentation Preference - Oral

In 2013 "Taggare sahmn”, a magazine for decision makers in the public sector wrote: "The trend is hopeless. 19 Swedish municipalities have shrunken every year for two decades. Twelve of them have may died out before the turn of the century. In 2070, Ljusnarsberg and Strömstad will be the first in line for the precipice, if the population continues to decline at the same rate as now." Imagine beeing a citizen in Kopparberg, the small town in the municipality of Ljusnarsberg, and waking up to that announcement! Well, you probably wouldn't be surprised, but still. My municipality has a sentence, a death sentence and a given date when it's all good, by time to pack the things and leave.

Several of the inhabitants in Kopparberg wasn't asked at all when national media called out the message. And the inhabitants in the other small municipalities in the former so proud mining district of Sweden is not asked for any opinion either. Meanwhile, a group of eleven artists that bought an old mine in the area thought "Hey, what about the locals, asylum seekers, art, music, heritage and the future of this place?" And suddenly, one year afterwards I was standing on an ice cold day with a director, journalist, artist, biker, a 23 year old dentist from Syria, an old man from Iraq, the local drunk, councillor and a bunch others, making an archaeological excavation of a public pinboard, with the overall theme: excavating the future of Kopparberg...

In this presentation I will give two examples of empowering the local community using heritage. The first example above is in great contrast to the other, where local school children excavates an old cottage where the farmerman 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 - Bilen, Jacqueline, Archaeological museum in Zagreb, Zagreb, Croatia (Presenting author)

Co-author(s) - Boras, Jelena, Zagreb, Croatia

Co-author(s) - Bukil, Ana, Zagreb, Croatia

Co-author(s) - Majdric, Marin, Zagreb, Croatia

Keywords: Depreivation and the Historic Environment

Presentation Preference - Presentation

Archaeological research often includes the influx of experts into a new community where research is conducted, inevitably leading to new relations. In 2014 and 2015, a similar situation occurred in Croatian Baranja, where archaeologists worked on the future A5 motorway, discovering new and reviving old data on the region’s cultural heritage.

The region under study has been under tremendous amounts of financial, political and social stress, especially in the last 20-30 years due to its position next to two Croatian borders and its role in the Croatian War on Independence. Depreivation of all possible sorts can, to this day, be noted in the area where jobs are sparse, where most entrepreneurs get swelled up by larger companies and where culture is seen as an irrelevant luxury, no longer enjoyed even by the local community.

From an archaeological point of view, Baranja is an extremely rich and valuable region. However, as with all other aspects of society, certain well-known and systematically excavated sites always cast a shadow on the smaller ones which rarely get a chance to be properly excavated and/or presented to the public.

The aim of this contribution is to show how all of this can be changed by applying the 'where there’s a will, there’s a way' approach in a situation where the local community never saw culture as something important and potentially lucrative, both financially and socially.

The site of Jauhov salaš (JASA) is an example of how archaeologists employed by the Archaeological museum in Zagreb have been able to create a common ground for policy and ethics. Can we come to a common ground for policy and ethics?
Managing the archaeological heritage

As a key issue when collaborating with different groups and individuals, especially metal detectorists. Many finders also report their finds to the media themselves. Thus the archaeological community needs to be found by a detectorist in Espoo in autumn 2013. After recovery it received international media coverage, resulting in a debate over the Antiquities Act (1963). The Antiquities Act protects ancient monuments, including a protected area around monuments of 2 meters. According to this same Act, finds over 100 years must be delivered immediately to the National Board of Antiquities (NBA) or a Provincial Museum. The finder must also provide information regarding the location of the find. The NBA can then decide if they want to redeem the find to their collections or not. Even though there have been reports in the media of “nighthawking” in Finland I argue that most hobbyists want to detect responsibly. However, it’s clear that the legislation is out of date. The law and regulations are also difficult to interpret, creating frustration on both sides. As professional archaeologists we need to communicate better with the public and the media. A lot of media reports still focus only on the value of the finds and not on the cultural historical significance. A good example of this is a medieval gold ring found by a detectorist in Espoo in autumn 2013. After recovery it received international media coverage, resulting in a debate over redemption fees. Many finders also report their finds to the media themselves. Thus the archaeological community needs to be more involved with the media and take more responsibility. It’s also important to note that engaging with the public needs to go both ways and that it is an ongoing process. Mutual trust is a key issue when collaborating with different groups and individuals, especially metal detectorists. As a key issue when collaborating with different groups and individuals, especially metal detectorists. Many finders also report their finds to the media themselves. Thus the archaeological community needs to be found by a detectorist in Espoo in autumn 2013. After recovery it received international media coverage, resulting in a debate over the Antiquities Act (1963). The Antiquities Act protects ancient monuments, including a protected area around monuments of 2 meters. According to this same Act, finds over 100 years must be delivered immediately to the National Board of Antiquities (NBA) or a Provincial Museum. The finder must also provide information regarding the location of the find. The NBA can then decide if they want to redeem the find to their collections or not. Even though there have been reports in the media of “nighthawking” in Finland I argue that most hobbyists want to detect responsibly. However, it’s clear that the legislation is out of date. The law and regulations are also difficult to interpret, creating frustration on both sides. As professional archaeologists we need to communicate better with the public and the media. A lot of media reports still focus only on the value of the finds and not on the cultural historical significance. A good example of this is a medieval gold ring found by a detectorist in Espoo in autumn 2013. After recovery it received international media coverage, resulting in a debate over redemption fees. Many finders also report their finds to the media themselves. Thus the archaeological community needs to be more involved with the media and take more responsibility. It’s also important to note that engaging with the public needs to go both ways and that it is an ongoing process. Mutual trust is a key issue when collaborating with different groups and individuals, especially metal detectorists.

Aspects of metal detecting in Finland

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 researches will be considered by the example of such category of archaeological finds as a stone shaft-hole axes. The study is based on the history of creation collections and researching of stone shaft-hole axes at the territory of Belarus. The first collections of the stone drilled artifacts in Belarus dates back to the middle of the XIX century. But they had a little connection with scientific approach and they explain the influence of the ideas of the Renaissance era to the magian crate. 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 XIX-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. 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.

Blunt instruments or intelligent solutions?

Compared to the UK the heritage laws in Germany and Austria are much more restrictive when it comes to metal detecting. But are the stricter laws really an effective deterrent? If so, the number of metal detectorists should be higher in the UK than it is in Austria and Germany. However, due to the stricter laws, the actual number of metal detectorists in the latter two countries is unknown. To compare numbers of metal detectorists in the countries mentioned above, this case study looks at metal detecting online fora, especially their membership numbers. These indicate that there are more metal detectorists in Germany than there are in the UK. This suggests that laws alone do not prevent people from looking for archaeological material. Laws do, however, influence other patterns of behaviour, particularly the reporting of finds to the authorities by their finders. Stricter laws do not seem to deter metal detecting, they deter finds reporting.
TH2-04 Abstract 07

Ignored and forgotten: avocational archaeologists and the lithic assemblages from fieldwalking

Author: Dr. Wright, Dene, University of Glasgow, Glasgow, United Kingdom (Presenting author)
Keywords: Avocational archaeologists, fieldwalking, lithic assemblages
Presentation Preference: Oral

Fieldwalking and the surface collection of lithic material on the Ayrshire and Wigtownshire coasts of Scotland has a long tradition dating back to the 1880s. This was in no small part due to the efforts of a number avocational archaeologists, and their participation with Ayrshire and Wigtownshire Archaeological Association founded in 1877. The 1970s witnessed the last in this line of avocational archaeologists who undertook such tasks in Ayrshire and Wigtownshire. There was no tradition of fieldwalking in South Lanarkshire, inland and adjacent to East Ayrshire. Coincidentally, the 1970s heralded the advent of this activity in South Lanarkshire. Hugh McFadzean (1919-2008) commenced fieldwalking in the Avondale District, which continued unabated until 1981. His work as an avocational archaeologist also involved fieldwalking forays in East Ayrshire, Isle of Bute, Fife, Stirlingshire and Wigtownshire. Hugh’s fieldwork in these other locations continued until the 1990s. As a case study, this paper will look at his motivations to undertake avocational archaeology in Avondale, and consider his contribution to the archaeological record. It will also critically reflect upon personal curation and his research into the lithic surface collections, and the contradiction to the legal position in Scotland under Treasure Trove and the concept of bona vacantia. Finally, drawing upon my own research the importance of the surface collections of lithic material to academic enquiry will be highlighted.

TH2-04 Abstract 08

Social Network vk.com and Archaeology: Sight from the East Europe

Author: Tsach, Evgenia, Institute for the History of Material Culture RAS, Saint Petersburg, Russian Federation (Presenting author)
Keywords: Public, social media
Presentation Preference: Poster

The purpose of this paper is to introduce to archaeologists the social network vk.com, which is wide spread in Eastern Europe. There are a lot of communities and events, which present their information and materials in the Internet. Thanks to them non-archaeologists, users, could learn a lot about archaeology. In the VK there are many communities and pages, where professional archaeologists introduce new information and last discoveries and try to do this using nonprofessional language. These information could help to understand better archaeological work to the non-professionals and to involve more people in science. In my poster I want to present some examples of these communities.

TH2-06 Abstract 01

The road to a working party is paved with good intentions

Author: Dr. Waugh, Karen, Vestigia BV Archeologie & Cultuurhistorie, Amersfoort, Netherlands (Presenting author)
Co-author(s): Dr. Hey, Gill, Oxford Archaeology, Oxford, United Kingdom
Presentation Preference: Round table

A draft proposal for setting up a working party to examine specific EIA issues was published in TEA 46. Following on from there, we would like to introduce the Round Table by presenting the progress made so far in defining aims and objectives for the working party. More importantly, the introduction should provide a structure for discussion and debate within the Round Table. It is hoped that the session will lead to a general consensus on a work programme that we can submit to the EAA Board for approval.

TH2-06 Abstract 02

The EIA Directive and Archaeology: the example of England

Author: Thomas, Roger, Historic England, Swindon, United Kingdom (Presenting author)
Keywords: EIA Directive, England, law
Presentation Preference: Oral

The EIA Directive on ‘Environmental Impact Assessment’ is a Europe-wide instrument, but it is given effect through the legal systems of individual member states. Implementation ‘on the ground’ is therefore affected by the organisational arrangements and professional approaches in each country. This paper will examine how the EIA Directive has been ‘transposed’ into English law, how it is implemented in practice in England, and how this has affected the professional practice of archaeology there. The paper will also consider whether there is scope for future improvements of the Directive itself, or of the ways in which it is implemented.

It is hoped that this paper, focusing on one country, will stimulate discussion of how the Directive is being implemented across Europe, and of what improvements might be sought in the future.
TH2-06 Abstract 03
Environmental Impact Assessment and Heritage Impact Assessment: improving the relationship

Author - Dr. Young, Christopher, Christopher Young Heritage Consultancy, Bicester, United Kingdom (Presenting author)
Keywords: cooperation, Environmental Impact Assessment, Heritage Impact Assessment
Presentation Preference - Oral

In values-based approaches to heritage management, some form of assessment of significance of the heritage asset, and of the impact on that significance of any proposals for development or change is essential. 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 HAAs 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 HA 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 Hybrid Bill. Although these types of planning applications and regulations fall outside of the Environmental Impact Directive, they are heavily indebted to the process of EIA which shapes the resultant approach, project design and method.

Through a discussion of projects subject to the Environmental Impact Directive as well as projects undertaken within the context of a DCO application or Hybrid Bill, this paper intends to explore the influence of EIA requirements on spatial planning and cultural heritage in England and how they shape our understanding of the English archaeological record.

TH2-06 Abstract 05
Preventive archaeological excavations & motorway construction projects in Romania

Author - PhD Bors, Corina Ioana, National History Museum of Romania, Bucharest, Romania (Presenting author)
Keywords: archaeological heritage management, EIA, motorway construction projects
Presentation Preference - Oral

Since year 2000 the management of the archaeological heritage in Romania had to face a new and challenging reality: the large-scale rescue/preventive archaeological excavations occasioned by the construction of the motorway networks developed along the Pan-European corridors. The National History Museum of Romania was involved since the beginning in coordinating a series of major archaeological projects developed in such situations. The presentation will briefly address a series of key aspects related to the round table’s topic, namely an overview of the most important archaeological projects undertaken in connection with motorway construction projects, the operational framework for preventive archaeology in such cases according to the national legislation and the correlation with the EU regulations, as well as a series of necessary improvements still required for drafting and implementing a valid archaeological management strategy in order to mitigate the impact on the archaeological heritage in the context of road infrastructure projects.
25 YEARS LATER: CHANGES AND CONJUNCTURES IN PREVENTIVE (DEVELOPMENT-LED) ARCHAEOLOGY IN FORMER ‘EASTERN’ EUROPE

Thursday, 1 September 2016, 14:00-18:30
Faculty of Philology, Room SP2

Author - Novaković, Predrag, University of Ljubljana, Faculty of Arts, Ljubljana, Slovenia (Presenting author)
Co-author(s) - Horvat, Milan, Via MAGNA Ltd., Vršič, Slovenia

Presentation Preference - Regular session

Due to the previously uncompetitive economies and outdated technological infrastructure, a great deal of former ‘eastern’ countries still remained largely underdeveloped. Compared to the average of the EU 15 in 1990 and 2014, only a few CE countries improved their GDPs from 40% to 80%, while others (Balkan countries, countries which stemmed from the former USSR) did not reduce the relative distance at all, their GDP averaged less than 15%. This should not be ignored when reflecting the preventive archaeology in the countries in question. Prior to 1990s all heritage services were the domain of public/state institutions and the overall disciplinary structure and practice was greatly dominated by the academical institutions with institutes at national academies at the top (the Soviet-based model). In most cases this structure has survived until the present day, and is still exercising influence (formal and informal) on preventive archaeology. One of the consequences is the view that preventive archaeology to a certain degree still needs to serve academic agendas. On the other hand, in some countries, though they kept to the Soviet-based model of national institutes, preventive archaeology achieved a much greater level of autonomy, with its own priorities and new practices and forms of organization, and some countries made even more radical changes. While, in general, all former ‘eastern’ countries ratified the La Valtellina convention, the status and practice of preventive archaeology varies so greatly that it can hardly be observed through a single theoretical framework. The session is aimed at exploring and reflecting the conceptual trajectories and practices developed in preventive archaeology the last 25 years. Papers presenting major changes in legislation, economic status of preventive archaeology, changes in its social role, labour markets, level of technology and expertise, and the profession of archaeology in general, are invited.

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., Vršič, Slovenia

Keywords: Eastern Europe, preventive archaeology, rescue archaeology

Presentation Preference – Oral

Until 1990s and the abolishment of socialist/communist regimes in ‘eastern’ European countries, archaeological service (institutions and practice) in protection of cultural heritage was fully in the hands of state bodies which had to plan funds in their state budgets for performance of 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 sustainable preventive strategies since the role of archaeological protection service was mostly seen as ‘reaction’ on newly discovered heritage, and not in the initial phases of spatial planning and development. The reasons for this were many, and not only associated with the fact that the ruling socialist regimes were highly centralized and bureaucratized. There were also reasons in prevailing cultural attitudes – culture or tradition of state ruling itself and cultural attitude towards the past and heritage.

The former ‘eastern’ countries subject to control and planning (not only in ideological terms but in terms of pronounced atavism as well), while the latter saw culture and heritage as special value of state (and public) which could not be let autonomous in its development.

Political and economic changes after 1990 had very different consequences in different countries in the field of preventive archaeology, and even the countries which shared similar or even equal systems of organization and practice of heritage protection (e.g. in former Yugoslavia or in the USSR) soon developed quite different systems which ranged from very ‘liberal’ to very ‘conservative’. In this respect it is interesting to note that what was ‘liberal’ systems of heritage protection which adopted more concepts of preventive archaeology and coupled them with the emergence of private market of archaeological services, while countries with ‘conservative’ systems openly (or in disguised form) expressed opposition to preventive strategies.

The two conjunctures – ‘liberal’ and preventive attitude associated with heritage and development of private market of heritage services – are not necessarily directly correlated (e.g. case of preventive archaeology in France), but this correlation seems higher in the case of former ‘eastern’ countries. However, looking at different experiences in the last two decades, another set of questions should be placed here – who, in what status, and to which degree, participates in the market of preventive archaeology as private entrepreneur. Do we speak of real entrepreneurs or ‘disguised’ public institutions? Is ‘open’ participation of public actors (e.g. model of NRAP in France) securing better control? And, what are, in the end of the day, the benefits for heritage, and benefits for actors, and public?
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 preparation of new documentation type for already listed heritage objects, and thus led to a certain stagnation of inventorying of new archaeological objects. Nevertheless, data exchange between the state Register of Cultural Property and the Real Estate Register should be mentioned as an important achievement in maintaining information on restrictions of land use available for archaeological heritage managers and users.

Archaeological excavations, or “protection through documentation”, can be identified as the main strategy of archaeological heritage protection. Development-led archaeology became the main form of scientific enquiry. As the contract archaeology system was developed, great attention is paid for excavations’ quality control procedures. Formalized requirements for archaeological excavations (where and how archaeological excavations should be conducted) became a legal norm since 2011. These requirements also demand to protect archaeological heritage constructs in situ. Formalized requirements have to adjust conditions for contract archaeologists’ competition as well. Nevertheless, objectification of criteria of archaeological research is modeling a situation “of typical archaeological excavations”, and thus in the professional community raises discussions concerning the scope of scientific information obtained during the archaeological research. Interpreting of archaeological heritage can be seen as means of constructing of local and national identity by various social and cultural groups. Nevertheless, interpreting of archaeological heritage by state bodies and their reorientation of management perspective from “archaeological object” towards its “user” is still need to be developed.

TH2-07 Abstract 05

Implementation of La Valetta convention: the Croatian perspective

Author: - Petricioli, Milos, Center for Conservation and Archaeology of Montenegro, Kotor, Montenegro (Presenting author)

Keywords: Cultural Heritage Protection, Montenegro, Preventive Archaeology

Presentation Preference - Oral

European Convention on the Protection of the Archaeological Heritage, released by the Council of Europe in 1992, had a significant influence on the practice of development-led archaeology in Croatia. Ratification of the Convention in 2004 and its implementation in legislation brought drastic changes by which archaeology became a part of planning in spatial and infrastructural development. But the changes did not include the full range of requirements needed for the successful practice of preventive archaeology.

Considering this problem it becomes observable that the attitude expressed in the Convention considers prevention as a prerequisite for the preservation of cultural heritage, and, rather than through salvage archaeological excavations, acts through active participation in the early stages of planning procedures. This process requires a developed set of tools which enables informed decision-making on the treatment of archaeological remains. As a part of the same process, concept of care and protection of archaeological monuments is being replaced with an approach directed towards the management of archaeological heritage where the main focus is placed on the issue of long-term sustainability and thereby the issue of in-situ preservation of archaeological heritage.

As Croatian archaeology is still not turning in that direction, this paper will be focused on consideration of factors which can fulfill the requirements for implementation of efficient preventive archaeology, but also the ones which are currently preventing Croatian archaeology in changing attitude towards sustainable heritage management.
It is not easy to say, where exactly Montenegrin archaeology is today. The old ("Yugoslav") concept in heritage protection remained in use until 2011 when Montenegro attempted for the first time to establish its own system and reform the institutional structure towards a more institutionally centralized and "nationalized" organization. Unfortunately, this had a rather negative impact on the development of archaeology, especially its service in the field of preventive strategies, which were never properly reflected and attempted in archaeological circles since they were established from 'above'. It is still common practice, that most of the larges projects in spatial development (e.g. highway constructions) almost completely evade preventive archaeology, while the situation regarding the booming tourist and construction industry in the coastal areas is even more difficult than it used to be 25 years ago.

TH2-07 Abstract 09

Bosnia and Herzegovina: preventive archaeology still recovering
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Keywords: Bosnia and Herzegovina, recovery, preventive archaeology, heritage protection
Presentation Preference - Oral

Organization of archaeological heritage services, museums and education in Bosnia and Herzegovina, after the end of Yugoslavia, and especially after the establishment of the post-Dayton peace agreement (1996) radically changed the situation until 25 years ago. Four major determinants can be seen today, all closely connected with the general state of the country itself are: Highly fragmented territorial and administrative organization: One organization on state level, two on lower, entity, level, as well as one on level of Brčko district. Entity of Federation of BH is further divided in 10 cantons, of which 5 have cantonal institutions responsible for protection of heritage, while the other 5 have these responsibilities entrusted to the cantonal ministries. Because of disharmonized laws on state, entity and cantonal levels, there are possibilities for overlap of jurisdictions during protection of certain monuments, and potential for mismanagement. Entity of Republika Srpska is divided on municipalities, and has a centralized institution responsible for heritage protection.

General economic situation (SOH) is among the lowest ranked countries in Europe regarding the GDP: preventing any substantial investment, employment in services in public sector (heritage services included). Most of museum institutions on local level have barely sufficient financing for basic operation. Inadequate (outdated) infrastructure: lack of trained people, equipment, unfunded institutional development.

Political situation. Because of the political deadlock over financing of 7 cultural institutions on state level, National Museum of Bosnia and Herzegovina was closed for almost 3 years, and other institutions that previously enjoyed state sponsorship in former state of Yugoslavia, have lost most of funds necessary to function properly.

TH2-07 Abstract 10

Practice of Archaeological Heritage Management in the Motorway Constructing Programme in Poland
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Keywords: Poland, rescue archaeology
Presentation Preference - Oral

One of the effects of political transformations in Poland of the last 25 years was a necessity of confrontation with huge infrastructural problems. One of them was, and still is, a poor state of motorways development. An aim of the speech is an analysis of this problem in reference to last ten years.

The above time limit is not a matter of chance. Till 2005 a system of selection of archaeological excavations on the motorway lines contractors was based on non-economic criteria – connected with scientific experience of contractors. Universities and archaeological museums were preferred. From a scientific point of view this system was effective and enabled realisation of research at a high level. Unfortunately, it also brought temptations. In 2006 a Polish nationwide archaeology corruption scandal broke out, in which both archaeologists and people responsible for granting concessions for research were accused. It was a real turning point in the history of Polish rescue archaeology. Over the next years a radical “marketization” of contractor selection took place. This launched mechanisms of competition, in which price was, as a matter of fact, the only criterion of evaluation.

The mentioned change admittedly ensured transparency of the procedures but it however turned out to be killing for archaeology. In this new situation archaeological research become an object of a market game. Sometimes, a victim of this game is social interest, and research are conducted at the lowest acceptable level.
activity. It is therefore necessary to prepare the archaeological community for the transformation of its activity towards targeted scientific and research activities.

Our paper will show how the Slovak professional community responded to this status.

TH2-07 Abstract 14
The settlement of Krahes: From a chance find to an archaeological protected site

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Keywords: Preventive archaeology
Presentation Preference - Poster

The Archaeological Service Agency is the first and only public institution in Albania charged to exercises authority over the rescue and preventive archaeology. Its activity is supported and coordinated by the Albanian Legislation, with the law “On Cultural Heritage” (2003).

The archaeological resource management as elsewhere in Europe after the review of the European Convention for the Protection of the Archaeological Heritage (1992), has drastically changed the whole system of the archaeological heritage management in Albania. The cultural heritage law of 2003 was amended further in 2006, 2008, 2009, and is currently under full revision.

The amendments of 2008 led to the creation of the ASA and National Council of Archaeology. ASA is assigned with a highly complex task that includes both the supervision of the archaeological projects and the undertaking of rescue excavations across the country.

ASA is also responsible for any chance find, that possibly appear during agricultural, construction or engineering projects around Albania. Their appearance sometimes may only represent the beginning of a long evaluation process to be finalized with the establishments of a new archaeological site that requires protection as the prerogatives of the law anticipate. During the past 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 Tepeleka (Albania). Two graves were discovered occasionally during agricultural works by a farmer who informed the local authorities (Regional Division of National Culture, Gjakova). 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 RDNQ Gjakova) conducted a survey around the area measuring approximately 3.5 hectares. A high intensity of finds (tiles, bricks, pottery shreds and some rubble walls) was encountered on surface. Taking into serious consideration this potential, the NCA agreed to give to this area the special status of the protected zone. More precisely, its borders were established by another fieldwork campaign. This new status will indeed prevent possible damages by construction projects or agricultural works.

The archaeological survey covered an area of 7 hectares divided in 12 tracks. Within it, 6 hectares yielded high intensity of data and was given the status of the protected zone.

The archaeological material found during the survey consists of fragments of tiles, pithoi, transportcontainer, utensils and pottery coated with bitumen. The relative chronology based on the above material indicates three periods of occupation for Krahes: Hellenistic, Roman and Late Antiquity.

TH2-07 Abstract 15
CONPRA (Contributing the Preventive Archaeology: Innovativeness, Development and Presentation)

Author: Prof. Novaković, Predrag, University of Ljubljana, Faculty of Arts, Ljubljana, Slovenia (Presenting author)
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Co-author(s): Gal, 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: Bouakkaz-Khan, Dokter, Metu⁄Du˚lu˚ Ye¨le¨sim Arkeoloji Anabilim Dalı, University College London, London, Unfaded Kingdom (Presenting author)
Co-author(s): Prof. Erciyes, Deniz Burcu, Metu⁄Du˚lu˚ Ye¨le¨sim Arkeoloji 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 CMAS Journal (Conservation and Management of Archaeological Sites).

The call for paper proposal for the session shall target work conducted at key sites such as Sagalassos, Aspendos, Nemrut Dağ and Pergamon, but shall not be limited to it. Junior and up-coming archaeologists as well as more established scholars shall be given the opportunity to confront their ideas and experiences, from a national and international perspective.

TH2-09 Abstract 01
Archeology for Management: New Cycle of Archaeological Research at Ani

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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-settled kingdom and remnants were followed by a new cycle of research under Turkish excavation directors, revealing the later Islamic layers of the city, while parallel efforts of foreign experts expanded knowledge on rock-cut architecture beneath Ani plateau and in the surrounding tufas and ravines. Devoted of later settlement, Ani currently stands as an exemplary relic historic city of the medieval period that consist almost all the building types of its region, including rock-cut caves and passages, however in an active seismic zone and a harsh continental climate.

This proposal aims to share the efforts, in the past two decades, towards the protection of this highly vulnerable heritage property, since the inclusion of Ani’s Cathedral in the inaugural watch list of the World Heritage Fund in 1998. International restoration and conservation activities undertaken at the site since then have involved several non-governmental organisations 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 Ocalık village at the entrance to the site. This vision recently officialised by the approval of the plan in view of Ani’s nomination for the UNESCO World Heritage List. These priorities extend responsibilities of the excavation director beyond the archaeological site, requiring additional management skills to train archaeologists normally acquire during their professional education and career, involving active collaboration with international bodies such as the Armenian institutions in Yerevan, international NGOs and researchers who have contributed in the on-going urgency interventions, local and central administrations as well as local communities.

The proposed paper aims to offer a working ground to exchange of experience on these and complementary topics around the case of Ani.

TH2-09 Abstract 02
Elaiussa Sebaste: safeguarding & valorization of a south-eastern Anatolia archaeological site

Author: Prof. Equini, Eugenia, Sapienza University di Roma, Rome, Italy (presenting author)
Co-author(s): - 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 bonds in order to protect the precious archaeological and physical landscape of Elaiussa from new building constructions in sensitive areas and from illegal waste dumping.

At present 4 different itineraries have been designed - on the basis above of interviews to visitors of various nationalities - of which the 1st concerns the necropolis, one of the most spectacular burial complexes in Turkey due to the good state of conservation, the monumentality and the richness of the funerary buildings.

The valorisation project of the Necropolis road between Elaiussa and the near ancient city of Korykos (modern Kirkalesi) was started during the 2015 campaign with bush clearing and carefully cleaning carried out by the Mesrin and Erdemli Beykozleydi. The results that have been obtained so far are very promising for the pursuing of the program to extend the visitor’s itineraries another 2 km.

2nd itinerary is to be in the Public Quarter; the 3rd will concern the structures investigated on the promontory which is the most difficult to implement due to the morphology and extension of the terrain, the 4th will be related to the Temple area on the hill overlooking the site of Elaiussa Sebaste.

The complete implementation of this program will be the realization of the infrastructure necessary for the valorisation of this geographical area will favour the development of sustainable tourism that will become an important part of the community’s cultural heritage and economic growth.

TH2-09 Abstract 03
Protecting and communicating Arslantepe: work in progress to save and narrate an early state centre

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Keywords: conservation, site management, Turkey

Presentation Preference  Oral

The archaeological mound of Arslantepe, in the outskirts of the city of Malatya, has been included in the UNESCO tentative list of world heritage sites in April 2014. The site is under regular archaeological excavation since 1961 and has yielded unprecedented data and finds concerning various periods of its history, but mostly that of primary state formation (end of the IV millennium BCE).

An early palatial structure still standing and in excellent state of preservation is the main testament left by this system and is today unique in its kind worldwide. For this reason an open air museum has been designed by the Italian Archaeological Expedition and inaugurated in 2011. Since then the site is officially open to the public and local awareness has increased significantly; in 2015 a
Managing the archaeological heritage

TH2-09 Abstract 04

Multiple layers and multiple players: management practices and archaeological conservation in Turkey

Author: Öz, B. Nilgün, Istanbul, Turkey (Presenting author)

Keywords: archaeological conservation, collaboration and inter-disciplinarity, management

Conservation management at urban and rural archaeological sites in Turkey is usually spearheaded by accredited architects and planners. As in other countries, archaeologists have often tended to work in isolation, away from the responsibilities of the longer-term management and conservation of their sites. It is becoming more common, however, for archaeologists, architects and other conservation professionals to work more collaboratively in the name of site management/conservation. But what are the driving forces behind these initiatives? Is it the interests of a specific director or a team member? Or is it triggered by the local authority or a funding body? Or perhaps a new national discourse? The Ministry of Culture and Tourism’s recent requirements that all archaeological excavations increase their conservation measures, and 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-aided projects at several sites across the country including Aphrodisias, Çatalhöyük, and Kaman-Kalehöyük among others.

TH2-10 Abstract 01

Management of large archaeological projects in a competitive environment: the French case

Author: Dr. Depaepe, Pascal, INRAP, Amiens, France (Presenting author)

Keywords: major development projects, preventive archaeology, public/commercial archaeology

In 2001, following the ratification of the Malta Convention (1995), France adopted a legislative system, entrenching 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 de Seine-Nord Europe. Methodological proposals will also be presented.
Managing the archaeological heritage

Since 1990, most European countries have introduced the 'polluter pays' principle in preventive archaeology. According to the Valetta (Malta) convention, the financing of the archaeology should be integrated in the (big) public and private works and in practice, developers are funding all, or most, of the archaeology.

However, recent evolutions are completely undermining one of the basic principles of the Valetta convention. As big public and private works are getting rare in North-Western Europe, preventive archaeology is more and more about small and medium projects. Developers, and their banks which are providing money for the projects, negotiate contracts with the owners, stipulating that the presence of archaeological sites modifies these contracts. In France, these types of contracts are now very common. They indicate that the costs of excavation should be deducted from the cost of the plot of land.

In this way, the polluter pays principle is in fact replaced by the 'owner pays' principle. This is not just a theoretical change but has important consequences. One of these concerns rural areas where excavations are getting rare as the cost of land is less than the price of excavations. More generally, excavations tend to concentrate where the land cost is the highest.

Excavating England: Development and developments in archaeological fieldwork since 1990

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 generated 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 Domeray Survey. The project database currently holds over 900,000 records relating to archaeological fieldwork in England; the vast majority of these records have been generated since 1990. It quickly became apparent that the English Landscapes project was not just documenting the behaviour of people in the distant past but also the more immediate and recent past: the nature of our data is clearly structured by modern archaeological practice. Our data shows that there are currently over 2400 unique archaeological organisations in England that have been involved in archaeological fieldwork since 1990. Although they range from commercial development-led companies, academic university departments to charity groups and volunteer organisations, the vast majority of these fieldwork investigations occur as part of the development and planning framework, within the context of a commercial system. The nature of proposed development, from aggregate extraction quarry sites, major road and rail infrastructure schemes and large scale housing development sites to smaller urban infilling and localised development schemes, clearly shapes both the design of the associated archaeological investigations and the resultant data. Archaeological fieldwork can range from massive landscape scale studies to constrained 'keyhole' investigation schemes and can be undertaken by large national companies or small 'sole trader' individuals. Examining how English archaeology has changed since 1990 and the advent of PPG 16 provides interesting insights into modern day archaeological practice and the relationship between legislation and the quality and quantity of archaeological data that has been produced.

This paper will explore how modern development has created and influenced development-led archaeology in England and how this influence has an underlying structuring effect upon the resultant English archaeological record.

CHANGING CONCEPT OF LARGE-SCALE EXCAVATIONS IN THE CZECH REPUBLIC

The aim of this presentation is to discuss the changes in management of the medieval towns in Norway, and its impact on archaeological excavations and scientific research.

Norway has a strong legislation regarding archaeology and cultural heritage. The Cultural Heritage Act states that all remains older than the Reformation (1537) are automatically protected. The medieval towns, with their large areas of thick occupation deposits and building remains, are being regarded as a single monument. Norwegian Directorate for Cultural Heritage is the agent responsible for giving permission to remove archaeological remains. The costs involved in investigating automatically protected monuments or sites are paid by the initiator of the project.

Until 1990 the Norwegian Directorate for Cultural Heritage had permanent excavation offices established in the most important medieval towns. Norwegian Institute for Cultural Heritage Research (NIKU) was created in 1994 as a split from the Directorate. One aim was to separate the research from the legislation unit. NIKU is an independent non-profit institution dedicated to preservation and sustainable management of cultural heritage. NIKU are responsible for excavations in medieval towns, churches, monasteries and fortified sites in Norway. Since 1994, more than 1,000 archaeological investigations of various sizes since have been carried out.

Archaeological excavations normally take place in connection with infrastructural development such as house building, road construction, laying cables and pipes, and installing tanks.

I suggest that the changes in the management of the medieval towns has had an impact on both the way the rescue excavations has been carried out and the scientific research. Until 1990 the research was focused on the medieval objects and the development of the towns, with the remains of houses, property boundaries and roads. Since 1990s the Norwegian Directorate for Cultural Heritage has had a policy to preserve medieval archaeological remains in situ and allowing piling through the layers as a fundamentation for houses and roads. This has encouraged research on monitoring culture layers in situ and the development of research related to nondestructive methods. Since 2013 a new railroad project in Oslo has resulted in a huge rescue excavation across the medieval town. New methods are applied in the field. How will this impact a new generation of researchers and the future management of the medieval towns?
This paper assesses current issues related to the implementation of large-scale archaeological excavations, emphasizing in particular the importance of research on rescue excavations in progressing archaeological research. In the European archaeology perspective, these issues are complex and the problem will therefore be discussed within the context of the Czech archaeological discourse concerning the earlier prehistory. Two types of large-scale excavations will be compared. 1. Non-rescue excavation of the Neolithic site at Bilyów, which started in the late 1990s and lasted nearly fifty years; 2. Rescue excavations of the Kolín city road bypass which was carried out in 2008. Results of both types of excavations will be presented exemplifying changes in archaeological research management.

TH2-10 Abstract 07
Modern technologies in Polish Archaeology – A Case Study of Central Masovia 2009 – 2014

Author: MA Wiśniewski, Mariusz, Wojewódzki Urząd Ochrony Zabytków w Warszawie, Warszawa, Poland
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Keywords: LIDAR, Photogrammetry, technology
Presentation Preference - Oral

The aim of this paper is to enrich academic discussion about broadly understood "modern" or "new" technologies in Archaeology by assigning actual facts and statistical information to various claims and propositions circulating in Academia. Further, to inform exactly how many research of what kind took place in the 2009-2014 period and in each year of this period, which method is most popular, and if there are any general tendencies to be noticed in usage of particular methods. Authors use as a base for this case study a certain area of nine counties in central Masovia region (Poland), which is moderately enriched by objects of archaeological importance, yet where a consistently high number of private and public investments causes steady, high number of archaeological projects to be carried out in recent years. These are conducted on different scale from one day watching briefs up to road scheme projects covering large previously underdeveloped areas around the city of Warszaw, and are carried out both by local archaeological teams and units from other parts of the country. A common factor is almost exclusively commercial character of work, also an important background is created by the EU funds inspired boom in infrastructural investments, that will most likely be the largest event of such scale for many years to come. Data presented here is collected from all field reports and document collection on a basis of art. 313 of Polish Monument Care and Protection Act by Masovian Voivodship Heritage Officer Office for the period of 6 years (2009 - 2014). Article does not aim to discuss quality of such work or validity of chosen methods for the projects they have been used in – this is a matter for another study. Neither is the authors aim to qualify, which method is more suitable for future use in the field archaeology in this region. This report should be treated as factual base for future discussion and an attempt to present the condition of Polish Archaeology in its certain aspect.

TH2-10 Abstract 08
Rescue Archaeology in Romania. Past and perspectives

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Keywords: academic research, cultural management, rescue archaeology
Presentation Preference - Oral

1989 represented a turning point for Romania not only from political point of view, but also from cultural management also. Romania, willing to be integrated into the European structures, adopted a brand new strategy regarding historical patrimony in concordance with European legislation and not only. From this point of view this was a dramatic change, suggesting that all is going into one direction only. 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, are there differences? Which those differences are? Importance into cultural strategy of governement? Technology applied in the field? Interpreting the data? Is it the reflection of the legislation or just try to be just a pale reflection of it? Can this way of research be done in order to provide information for an academic archaeology?

To this kind of questions and to many others we intend to respond and to presents the state of link between the preventive/ rescue archaeology and the academic scientific research.

TH2-10 Abstract 09
Rescue Archaeology in Russia: the radical shift of the 1990s, and its consequences

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Keywords: change in legislation, rescue archaeology, Russia
Presentation Preference - Oral

In Russia, the beginning of the 1990s was a turning point in the history of the nation. Massive changes took place in the political, social and legal spheres over an area which made up one-fifth of the world’s landmass, with a population of over 170 million people (including the USSR, Bulgaria, Hungary, Poland, Czechoslovakia and other nations). The resulting shift to a market-based approach in the cultural sphere (including archaeology) was both significant and controversial. During the period of the economic and political crisis in the early and mid-1990s, the amount of archaeological research being conducted fell overall, including rescue archaeology – primarily due to the situation which had gripped the entire country. In 1993 the Federal Law 73-FZ came into force: ‘Concerning sites of cultural heritage (historical and cultural monuments) of the peoples of the Russian Federation’. In 2011 Russia adopted the European Convention on the Preservation of Archaeological Heritage. In the 2000s, the situation changed rapidly, due to the fast pace of economic growth. These changes were clearly demonstrated by the pace of issue of permits for carrying out archaeological works. This inevitably raised questions about revising the methodology with which such rescue archaeology was conducted, and ways of optimising it. A system of regulation had evolved over many years, in which scientific regulation underpinned the methods employed when researching archaeological sites – identification on-site, and a method for presenting the scientific documentation which applied across the entire country. These norms apply to rescue archaeology too. There are no ‘short cuts’ available in these methods. Attempts to bring in systems of ‘observation’ as a subset of ‘rescue’ archaeology methods can be considered successful only in the case of research into later, mixed-up deposits. Alongside this, the system by which the state funds scientific research has also changed. The proportion of rescue archaeology work conducted in the 2000s rose to above 80%, whereas it had only accounted for 20% in the 1990s. The development of private, including small business accounted for a considerable rise in the proportion of research being conducted by non-state firms involved in rescue archaeology – from 1% in the early 1990s, to 40% in 2012. This pace of change is intrinsically connected with the way in which the tax system operates in Russia. For state organisations (departments of the Russian Academy of Sciences, museums, universities) the system of taxation remains in place, in which there are no tax-breaks. However, in 2004 the Russian Federation brought in a tender scheme for a wide range of different services – including archaeological services. The primary consideration under which such tenders were won or lost, was the price quoted for their completion. Non-state organisations were placed at a significant financial disadvantage under these arrangements. During the period of the Russian economic crisis of the 1990s (and especially arising from ‘black holes’ in legislation) a significant Black Market developed for archaeological artifacts. In 2013 a new Federal Law came into force, No 245 ‘Concerning amendments to Particular Legislative Measures of the Russian Federation which prevent illegal activity in the field of archaeology’.

TH2-10 Abstract 10
A protection system of archeological heritage in the Tver Region in Russian Federation

Author: Krotkhin, Alexander, IA RAS, Tver, Russian Federation (Presenting author)
Keywords: A protection system of archeological heritage, Tver Region in Russian Federation
Presentation Preference - Oral

The Tver Region is situated on the Upper Volga between Moscow and Saint-Petersburg. Three big rivers start on the territory of the region – the Volga, the Western Dvina, and the Mata; the Dnieper has its source nearby. The region turned into a historical crossroad, where the waterways to the Baltic, the Black, and the Caspian Seas started. This region was popular among different population groups from the Late Paleolithic up to the Modern times. More than 7000 archeological monuments were discovered in the Tver Region. The objects of the archeological heritage are protected by law; as archeological monuments are considered to be state property. The Law states that financing the preventive (rescue, protective) archeological excavations is the obligation of the construction project investor. The protection system of the objects of the cultural heritage in the Tver Region appeared in 1990s. A small branch of the Cultural department of the Regional Government represented the state interests in those years. Five or six archaeologists worked at the State Museum and the University. Small excavations and searching for new archeological monuments were carried out. The events in the beginning of the 1990s in Russia led to the rise of economic activity, especially in construction. The new laws, which allowed commercial firms to conduct archeological works on equal basis with state organisations, were adopted. The first private archeological company - Tver Research and Restoration Archaeological Center – was established in 1990. After the year 2000 a new Department on State Protection of the Cultural Heritage in the Tver Region was founded with the aim to control the processes of archeological monuments protection (archeologists, historians, architects, lawyers, and managers work in the department). The State Department controls the execution of the federal law, which states...
that the preventive archaeological excavations are obligatory on the sites where construction works are planned. The investors are ready to fund archaeological works. But how does the Law operate? It obviously operates through an archaeologist. A rapid development of the construction business led to a great amount of preventive excavations. Tver State University solved a problem of the necessity of young archaeologists training. About 10 state and commercial organizations dealing with the preservation of the archaeological heritage work in the Tver Region nowadays. To sumarize, there are two components of the archaeological heritage protection system in Tver Region. Department on State Protection of the Cultural Heritage and archaelogical organizations. The system is effective. In the territory of the historical centre of Tver there were rescue excavations carried out on the territory of more than 400000 m². Archaeological works were also carried out during the construction of the new roads, oil and gas pipelines. 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 archaeological heritage as well as the importance of improving the scientific relevance of the preventive archaeological works.

TH2-10 Abstract 11
"Amateur" archaeology, legal or not?
The experience of a legislative practice in Russia
Author - Sapyrina, Irina, Institute of archaeology RAS, Moscow, Russian Federation
Co-author(s) - Zielenskova, Olga, Institute of archaeology RAS, Moscow, Russian Federation (Presenting author)
Keywords: heritage, law, Russia
Presentation Preference - Oral
Hoard hunting has been actively developed since 1990s in Russia and all over the world. It is connected with dramatic changes in social and economic life of the country and availability of metal locations. 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 N435 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/fmation of the objects of an archaeological heritage, about the state national objects' register and the encourage the liability of the archaeologists. The report is about the analysis of the practice in the application of the federal act 315 for the last two years from the moment of its adoption.

TH2-10 Abstract 12
Moscow Monasteries: new stage of the archaeological investigations (2003–2015)
Author - Beliaev, Leonid, Institute of Archaeology of RAS, Moscow, Russian Federation (Presenting author)
Co-author(s) - Grigorian, Svetlana B., Institute of Archaeology of RAS, Moscow, Russian Federation
Keywords: Late Middle Ages, Early Modern times, Moscow monasteries, new investigations
Presentation Preference - Oral
Archaeological investigations of the Zachatievsky Alekseevsky monastery (Dolotochnka) that were started in 2003 laid the foundation for the new stage in the monasteries investigations which at the present time is recognized as one of the most important stages in the archaeology of the Late Middle Ages and Early Modern times in Russia. Until the last third of the 20th century the Moscow period hasn't been investigated by the archaeological 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 teamed up with movement for the monuments protection. The first large excavations in the monasteries were held in 1980s. For two decades (mid 1970s – mid 1990s) three key monuments of Moscow monastic archaeology – the Bogoyavlensky, Danilov and High-Petrovsky monasteries have been investigated and become standard objects. The monasteries of the Moscow Russia were understood as a new type of monuments.

In the beginning of the XXI century the situation has changed radically. At the moment archaeology is capable of solving large variety of problems first of all thanks to the development of the fundamental scientific research. Detailed examples of such works are provided by the investigations in Zachatievsky Alekseevsky, Sretensky, Nvoslavskvy, Novodevichy and Dosnky 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.

TH2-11 Abstract 01
Growing Living Landscapes
Author - Dr. MacGregor, Gavin, NorthRignt Heritage, Glasgow, United Kingdom (Presenting author)
Keywords: Archaeology, Future, Landscape
Presentation Preference - Oral
As an introduction to the session, Growing Living Landscapes, I would provide some context as to why archaeologists should be concerned with contributing to the growth of living landscapes.

As such, the paper will consider the ramifications to archaeological practitioners of the increasing need for articulation of the management of archaeological and historic environment assets with other tools and instruments which seek to deliver more sustainable landscape management. Ultimately, it will outline some perspectives and areas of practice which could be developed further as opportunities for future innovation in growing archaeology and historic environment as part of living landscapes.

TH2-11 Abstract 02
Cultural landscapes in the Cantabrian Mountains: rethinking the future of rural Europe
Author - Dr. González Álvarez, David, Universidad Complutense de Madrid, Sabadell, Spain (Presenting author)
Keywords: Cultural Landscapes, Heritage, peasant communities
Presentation Preference - Oral
In the region of Asturias (North of Spain), local government chose thirty years ago a terrific successful slogan for promoting rural tourism: "Asturias, Natural Paradise" (from Spanish "Asturias, Paraíso Natural"). The logo of this famous campaign shows an idyllic rural drawing with green meadows which are sight through the arches of the early medieval church of Santa María del Naranco.

FROM ARCHAEOLOGICAL PASTS TO LIVING LANDSCAPES
Friday, 2 September 2016, 09:00-16:00
Faculty of History, Room 211
Author - MacGregor, Gavin, NorthRight Heritage, Glasgow, United Kingdom (Presenting author)
Co-author(s) - Dr. Stagno, Anna Maria, University of Basque Country, Spain
Co-author(s) - Dr. Murtagh, Paul, CARLV Heritage, New Lanark, United Kingdom
Presentation Preference - Regular session
The management of archaeological and historic environment assets increasingly articulates with other tools which seek to deliver more sustainable rural landscape management. A range of landscape scale planning and management tools are currently being applied in Europe including Biosphere Reserves, Ecomuseums, Landscape Observatories, Landscape Partnership Schemes, Landscape Plans, Landscape Programmes and World Heritage Sites.

We wish to critically explore how archaeology, historic environment and cultural heritage currently sit within such tools:

- How are archaeological, historic environment and cultural heritage assets weighted and prioritised (e.g. in contrast to ecological or social values)?
- What opportunities does archaeology and historic environment offer for sustainable economic development in rural landscapes?
- How can archaeological (and historical ecological) research help to characteristically environmental resources management practices, based on local actors and local knowledge, to offer new tools for management of rural assets?
- What are the benefits and challenges of living traditions and heritage produce in sustaining resilient cultural landscapes?
- What opportunities do archaeological assets provide for building broader sustainability and legacy?
- Are there examples of past land tenure and stewardship from which lessons (both negative and positive) can be learnt in future management of landscapes?
- How successfully have communities been engaged and involved in the development and delivery of such tools?
- How successful have such landscape planning and management tools been at creating legacies and sustainable approaches to more integrated landscape management?

We welcome papers which address some of the questions above, either through case studies on experiences, broader critical reflection on landscapes management policy and tools, or by exploring opportunities for future innovation.
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 residents have failed to achieve their goals concerning the natural component of the Asturian landscape. Thus, the 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 Paleolitikos art caves or some medieval churches, stand out among the forests in the mountains or the cliffs in the coast.

However, recent Landscape Archaeology studies and palaeoenvironmental research have shown the relevance of human activities in the formation of European landscapes, even in the most remote or liminal areas. At least since the Neolithic, the labor and the efforts deployed by peasant communities in taking advantage of the soil potentialsities 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) stabilish nowadays with the rural landscapes. But, are these ideas sufficiently considered by state and regional-level governments in the management of European landscapes?

It seems clear that, rather, this ‘natural paradise’ is actually an artificial image in which the cultural aspects should have a more significant weight. The rural landscape is reified, while the experience and efforts made by local communities are muted. This way, peasant families become subaltern actors who barely can speak, since they are marginalized from the policy making processes. So, the aim of this paper is in the first place to evaluate the consequences of this sort of naturalistic narratives for the local peasant communities. Secondly, I think we (archaeologists) should deconstruct the official speeches made by public institutions on the management and promotion of tourism and the Asturian cultural heritage. In fact, we could disseminate alternative narratives which may reinforce the local peasant positions as stakeholders for the future of rural landscapes.

Landscape Archaeology can provide more comprehensive narratives about cultural landscapes which would strength the role of Archaeology as a valuable Social Science for rethinking the future of rural Europe.

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**TH2-11 Abstract 03**

**Environmental archaeology in rural landscape and heritage management: experiences in Liguria (Italy)**

*Author - Pesce, 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 apriotic ‘natural balance’. These strategies are the results of rural landscape policies and environmental management that have adopted a ‘perceptive approach’, and are exemplified in general policy documents such as those of the European Landscape Convention, within which no attention is paid to the ecology of specific places and sites.

The abandonment of local agro-silvo-pastoral practices, awarded by general and national choices of re-naturalisation of the rural landscape, is one of the main causes of the loss of biodiversity, increase in hydrogeological instability and risk of fires. A redefinition of the actual factors that produced and shaped individual rural landscapes is required for a better understanding and a more sustainable management of this heritage.

The historical study of environmental resources involves archaeological, environmental and historical ecology methods of investigation; such a historical approach to specific sites allows identifying, characterising and explaining the environmental resources and rural landscape features as the output of both historical and environmental processes.

This paper presents some research carried out in Liguria (NW Italy) that contributed to the study of land use and of the historical ecology of sites. The first case is related to the resting 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 these work have been applied in environmental planning and in the historic characterization of the rural heritage, agro-silvo-pastoral landscapes and local products.

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**TH2-11 Abstract 04**

**Engaging stakeholders, shaping practice: Strategies for sustainable cultural landscape management**

*Author - Dr. Tully, Gamma, Durham University, Durham, United Kingdom (Presenting author)*

*Co-author(s) - Dr. Moore, Tom, Durham University, Durham, United Kingdom*

*Keywords - Cultural landscapes, Engaging stakeholders, Sustainable management*

*Presentation Preference - Oral*

Understanding and integrating stakeholders as the active creators and beneficiaries of cultural landscapes is an essential but under-developed element of sustainable heritage research.

Through work focusing on some of the most significant monuments in European history (Late Iron Age oppida: c. 200BC–A.D.600), 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 Bagendon and Salmonsorry in the UK, which represent two of the case study sites involved in the ‘Reimagining Europe’s First towns’ (REFT) project funded by the Joint Heritage European Programme’s (JHEP), Joint Heritage Initiative (JHI). The project represents cooperation between Durham University (UK), Biblcalc EPC (France) and Universidad Complutense de Madrid (Spain), alongside associated 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.

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**TH2-11 Abstract 05**

**Living Archaeological Sites in Modern World: Discussions on Ancient Rural Heritage in Turkey**

*Author - Assist. Prof. Nayo, Nilüfer, 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. This paper aims to discuss enhancement of potentials and establishment of strategies to achieve “living archaeological sites” approach by sustainable development of traditional communities living in these sites. For this purpose, a number of different cases from different parts of Turkey, in which the author has been involved during past few years, are presented. The results of multidisciplinary experiences are discussed in order to highlight potentials to link integrated management policies between rural archaeological heritage and traditional landscape policies under the theme of “living archaeological sites” within the framework international doctrines and national legislations.

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**TH2-11 Abstract 06**

**Archaeology and landscape policies of rural areas. First results of a project in Southern Europe**

*Author - Dr. Stagno, Anna Maria, University of the Basque Country, Vitoria Gasteiz, Spain (Presenting author)*

*Co-author(s) - Panetta, Alessandro, University of Genoa, Genoa, Italy*  
*Co-author(s) - Panza, Claudia, University of Genoa, Genoa, Italy*  
*Co-author(s) - Rendu, Christine, University of Toulouse Jean Jaures, Toulouse, France*  
*Co-author(s) - Tejeiro Garcia, Carlos, University of the Basque Country, Vitoria Gasteiz, Spain*

*Keywords - Cultural Heritage, Local Practices, Rural Archaeology & Historical Ecology*

*Presentation Preference - Oral*
Across Europe rural areas are suffering, in term of loss of biodiversity, cultural landscapes and traditions, as the consequence of depopulation and increasing abandonment of their management. This problem is particularly evident in mountain areas, where the presence of common-lands and common access rights was crucial in shaping settlement patterns and rural landscapes, nowadays often protected as natural heritage.

This paper will consider, through presentation of the first results of a project focused on the archaeology of common-lands in Southern Europe, how archaeology could contribute to the creation of more synergies between research and management of mountain and rural areas.

The study is centered on the connection between social structures and related material evidences of local practices. The investigation pays specific attention to the practices of management and production of agro-forestry-pastoral resources. This approach has clearly shown, on one side, the historical dynamicity of rural areas (and in particular of common-lands) for transformation of uses, organization and access rights and, on the other, the contribution of local knowledge to the construction and preservation of historical rural landscapes.

The paper will reflect on how archaeology and historical ecology could help to connect historical reconstruction and present management of landscapes. This link could offer new approaches to better define landscape management policies, based on local actors and local management of environmental resources, in the framework of actions for the conservation of rural areas as a part of European Cultural Heritage.

TH2-11 Abstract 07
Cultural landscapes and territorial management: the case study of Madrid

Author - Dr. Ruiz Del Arbol Moro, Maria, Institute of History, CSIC, Madrid, Spain
Co-author(s) - Sastre Prats, Ines, Institute of History, CSIC, Madrid, Spain (Presenting author)
Co-author(s) - Garcia Hernandez, Maria, Universidad Complutense, Madrid, Spain

Keywords: Cultural landscapes, Madrid, Tourism

Presentation Preference - Oral

The Community of Madrid (this is the name of the administrative region of Madrid) is one of the main tourist regions in Spain, with a growing interest in the non-mass tourism. This cultural heritage, both of a rural and urban character, is protected by several laws and articulated into several typologies. As in other parts of Europe, this heritage constitutes an important factor for the quality of life of local people; and, at the same time, needs to be turned into an asset for regional development. Our proposal presents a research approach done within the project "The heritage ensembles as touristic activites 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 environment and 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.

TH2-11 Abstract 08
Through Rural Living Landscapes to Ethnoarchaeological Reflections of Salt in Eastern Romania

Author - PhD Student Aghdulcse, Mihaela, "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, medieval and modern documents, as well as by current human behaviour determined by the abovementioned natural resource.

The Eastern Romania, a region rich in salt, has a privileged position in European 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 this community are threatened by a rapid globalisation and by a forced civilizing, it is necessary to draw attention over the risk of the irreversible loss of many of these practices that make a unique intangible heritage.

This paper aims to highlight the human behaviour that is defined by the collective mindset of Eastern Romania rural societies, through a diachronic approach, under several aspects, for identifying some ethnoarchaeological paths for an archaeological interpretation.

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 evidences provide crucial insights to understanding archaeological landscapes and their evolution, but they also can contribute to the protection, management and planning of traditional landscapes in Europe and abroad. Despite these potentialities, 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 d’Aosta - Biognois. An upland valley (>1600 m asl) in the Cuneo province (Italy). The local landscape is characterised by the presence of Pastoral structures: dry-stone pastoral cabins (gais) and cellars for cheese-maturing (saile). Most of these gais and saile are still exploited by local herders. They were recorded via remote-sensing, fieldwork survey and historical maps. Archaeological excavations within the gais of Biognois 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 gais of Biognois, 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.

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 promotion in 1820 of one of the first laws of Italian protection, the Paccia’s Edict, in the second half of the 300s 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 uncontrollable speculation that put a strain on so-called Lieu de Memoire 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 weaker 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 littorino little studied or known. Being the city that threatened to destroy its goods in the 1960s, with the last elections in 2013 the Municipality...
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Such an approach reflects the increasing desire to see archaeology as part of the wider historic environment, and reflects something of the reality of a site that was a Roman city for 500 years, but has been farm land for millennia, before and after the Romans.

**TH2-11 Abstract 15**

**Transformation and management of Historical Agrosystems in the Iberian LandscapES (THALES)**

**Author:** Dr. Sarabia, Julia, University of Alicante, Alicante, Spain (Presenting author)

**Presentation Preference:** Poster

The interest in the study of cultural landscapes has grown considerably in recent years. Several strategies have been developed in this field in Europe, marking it as a priority area of interest in Community policies as landscapes combine elements that affect both the cultural, environmental, economic identity and political heritage. In this context, we present the first results of THALES project (University of Alicante, Spain). The main challenge of the project is the combination of different methods to study the Iberian cultural landscapes for more advanced purposes: to contribute to a deeper understanding of the territory, in order to achieve development that respects the legacy of the past and its conservation. It is used a multidisciplinary approach (archaeology, geography, ethnography, soil science, agronomy), from a multi-scale (from local to European level) and with a diachronic perspective (from antiquity to the present day). In order to consider the various mechanisms of appropriation and transformation of the environment by the societies, the project focuses on the analysis of various types of cultural landscapes of the Iberian Peninsula, especially selected by the morphology of their agrarian systems: one of the most homogeneous expressions of the interaction between man and territory: 1) mountain landscapes of Sierra del Segura (Albacete) and Sierra de Alatana (Alicante), characterized by small height villages of Islamic origin with an agropastoral economy. The element that characterizes the agricultural systems of these communities is the terrace farming: plots created to take advantage of the mountain slope where are developed infrastructures for the exploitation and distribution of water resources (cultural landscapes generated from the Islamic period to the present day, still in use). 2) plain landscapes of Campo de Helfin (Albacete), the Valle del Vinalopó (Alicante) and Vega Baja del Segura (Alicante), characterized by exploited agricultural environments without interruption from antiquity to the present day, but with different strategies (Roman villas, early medieval rural villages and farmhouses, medieval faldoms, contemporary agrarian colonies). Our study focuses on understanding how historical societies have occupied and administered this space, characterized by a shortage of water resources.

**TH2-11 Abstract 16**

**Landmarks and landscape in the South Eastern Sicily**

**Author:** Dr. La Terra, Lia, Novara, Italy (Presenting author)

**Presentation Preference:** Poster

South Eastern Sicily provides a privileged view for the analysis of the impact on the culture of “Sikels”, thanks to its huge variety of indigenous settlements dated to the Iron Age and concentrated around the Ionian coasts, which were early visited and occupied by Greek colonies. Nonetheless, the archaeological debates and researches have been always concentrated in a Greek point of view, leading indigenous archaeology as a “niche archaeology”, where sites are even not well preserved and inserted in the archaeological potential resources.

For these reasons, I would like to focus on the analysis of the indigenous sites of the Hyblean Area. The portrait that has been revealing forces me to leave the well-known ethnic classifications and characterizations, getting close to the concept of “hybridity”. In fact, Greeks and indigenous people have developed an interactive dialogue that highlights the creation of a “third space” or “middle ground” that is not indigenous nor stranger, rather a cultural mélange generated by the meeting between the two parts, well visible in the social exchanges, osmosis of ideas and material culture.

Re-centring the specificity of the indigenous archaeology could be an important way to reconsider also the archaeological landscape nowadays and promote new strategies of development of the area. In fact, the case of the South eastern sites are emblematic to describe a shared situation for a considerable number of sites in the Region that are affected by lack of funds and absence of great managing plans. Investigating further the relationship between sites and their natural landscape might be very interesting. Prehistorical sites in Sicily (e.g. Pantalica, Cassibile, Thapsace, Monte Finocchito) are set on beautiful and breathable scenarios and the boundaries between archaeological landscape and natural-rural landscape are full of overlaps and possible links. This fact could suggest the idea of possible integrated landscapes where naturalistic tracks, rural traditions and archaeological sites are linked together in unified managing plans. In this context we present the first results of Ergili and the relation with Daskyleion archaeological site will be discussed as the sample.

For a rural area, the connection with an archaeological site is an opportunity in many aspects. If the value of cultural heritage can be understood well, it will be used as a sustainable resource. With a well-organized, long term management plan, the archaeological site can be used as an open museum for learning the past, a school for cultural heritage training, an income for rural settlement’s economy and a platform for cultural exchange. This paper aims to explain the progress with a practical sample after preparing a theoretical background about the benefits of an archaeological site to a rural settlement. The present situation of Ergili and the relation with Daskyleion archaeological site will be discussed as the sample.
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
Keywords: bio-archaeology, child/adult relations, ex-utero 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 of older adults has spurred the growth of a new stage in the human life cycle on a scale, in which older individuals have time and resources not previously available to them. This has changed the dynamic of the present, and increased the potential for interaction between the young and the old. It is possible to see such life-stage interconnections in something as simple as grandparents and grandchildren visiting museums together. None the less, museum outreach programs, activities and research communications rarely highlight this aspect of child-adult relationships in the archaeological narrative about the past.

The research program BEVARES (Biological Environmental and Archaeological Interdisciplinary Research on life course, material culture and materiality in human depositions), at the Museum of Archaeology, University of Stavanger, Norway, seeks to address issues surrounding the recovery and curation of organic materials from archaeological contexts, particularly those involving the preservation of human biological remains. Our project within the program focusses on previously excavated material in the museum’s collections which has either not been analysed at all, or not been analysed using up-to-date techniques/standards. This paper presents our attempt to establish an overview of the ex-utero 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 is one of the potential outcomes of our research.

TH2-13 Abstract 02
Mother-child relations in Early Bronze Age Traisental

Author - Mag. Dr. Rebay-Salisbury, Katharina, Austrian Academy of Sciences, Vienna, Austria (Presenting author)
Co-author(s) - Rebay-Salisbury, Katharina, Austrian Academy of Sciences, Vienna, Austria
Keywords: Austria, Early Bronze Age, motherhood
Presentation Preference - Oral

The Early Bronze Age inhumation cemeteries of Lower Austria belong to three cultural groups (Attique, Unterwölbung and Wieselburg) with distinct burial practices. They differ in particular in terms of how bodies were placed and buried in relation to each other. In this contribution we scrutinise the archaeological record for evidence of mother-child relations. We will begin by presenting graves of pregnant women and graves of woman and children buried together, in order to understand how such individuals were treated by their societies in death. We investigate the most likely ages for life-transitions such as first motherhood and menopause, as well as explore material markers of such transitions. Social responses to pregnancy, birth and early childhood 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-Salisbury, Katharina, Austrian Academy of Sciences, Vienna, Austria
Keywords: Austria, Early Bronze Age, Grandparents
Presentation Preference - Oral

Grandparenting has been critical to the development of human life history. It has even been suggested that the role of grandparents in childcare is the reason for the extended lifespan seen in modern humans. However, the roles and functions of grandparents have not previously been investigated in later prehistoric contexts. Ethnographic studies show that grandparents take on an extremely wide role 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 to potential to transform our understanding of prehistoric household and family structures. In this paper, we examine the potential impact of grandparents in prehistory. We will use demographic data to explore how common grandparents might have been, whilst bringing in a variety of ethnographic examples to identify potential activities and relationships of grandparents and grandchildren. We will then use a case study from the Early Bronze Age Traisental in Austria to show how prehistoric mortuary data might inform us about grandparenting in the Early Bronze Age. The existence of a series of large, well excavated cemeteries from this area makes it possible to investigate how the ideas of the ‘grandparent’ might have been constituted both in life and death. In addition, we will investigate the extent to which grandparents may have had a reciprocal role in caring for 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. Galiou, Chrysovalant, The University of Nottingham, Nottingham, United Kingdom (Presenting author)
Keywords: childhood, elderly, aging, Prehistoric, Aegean
Presentation Preference - Oral

Scholarship on age and gender in prehistoric Greece has taken an adult-centric approach [with a focus mostly placed on young to middle-aged men and women] and, as a result, two significant age groups - infants/children and the elderly – have been widely neglected. However, lacking a strong insight into attitudes towards these two age groups, archaeologists do not really harbour a concept of the whole span of life in the Greek-speaking and the non-Greek speaking societies that developed in the Aegean region during the 2nd millennium BC. Making children and the elderly visible in the archaeological record, examining 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 01
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 remains and textual references, the aim of this paper is two-fold: a) to provide a comprehensive account of the diverse attitudes towards childhood and the elderly in the region during the Late Bronze Age; and, b) to shed light on the interactions between children and the elderly both at household level and in the context of funerary archaeology.

TH2-13 Abstract 05
Family constructions and adult-child relationships in the Ancient Greek Oklos

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 oklos with special attention to children age 0-7 years. Research points to the fact that children in the ancient Greek household - the oklos - 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 oklos.

This research has been published in: Sommer, M. & Sommer, D. (2019). Care, Play and Socialization in Ancient Africa – A Developmental Childhood Archaeological Approach (DK: Aarhus University Press).

TH2-13 Abstract 06
Circle of Life? Aspects on youth and old age in Viking Age and Medieval Scandinavia

Author - PhD Meijsholm, Lotta, Uppsala, Sweden (Presenting author)

Keywords: Age construction, Burials, Viking Age
Presentation Preference - Oral

In Viking Scandinavian society, people were to a high extent defined and commemorated by their deeds. The productive, freeborn, preferably male, adult formed a societal norm, to which children, slaves, outcasts, unproductive elders and "others" were contrasted. Consequently, and as a result of contemporary academic paradigm, children, and elderly has often been tagged as "invisible" in the records available. Nothing could be more wrong. In this paper, the sphere of children and elderly in Viking Age and Medieval Scandinavia is explored, as a specifically 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 defencelessness of these household dependents is expressed in terms of limited capabilities, which, is argued, is a relevant definition also in academic discussion.

In the burials from Late Viking Age and Early Middle Age, graves of elderly, impaired, sick people and children in many cases differ from those of the productive adults. One specific phenomenon is approached in this paper, namely the use of amber beads. Amber has been used as protective agent in Viking Age, i.e. as amulets attached to swords. A similar understanding could be used considering the burial arrangements for elderly and young. Characterised by a state of dependence and limited capabilities, but also specific legal and magic protection, the young and the old seem to represent a distinct social category within the household. Likewise evident, the youngest family and household members, the unbaptized and newborn infants, were yet to enter this specific sphere.

Is it possible that this correspondence between age identity and the old represent a Viking Age cyclic view of life? Perhaps so, but there might be reasons not to simplify our interpretation of the complex ethnohistory interfacing with reality in Viking Age society.

TH2-13 Abstract 07
The old and the young in the Icelandic early Christian household cemetery

Author - Zoega, Gudry, Sigafjörður Heritage Museum, Saudarkrokur, Iceland (Presenting author)

Keywords: Bioarchaeology, Household, Medieval
Presentation Preference - Oral

In recent years a number of early Christian cemeteries have been excavated in the region of Sigafjörður, North Iceland. These cemeteries belonged to, and were managed by, occupants of individual farms and were in use from around AD1000-AD1200. The burial cemeteries do not differ from the sparse burial record in that they are all inclusive, i.e. include members of both sexes and all ages, essentially representing all the inhabitants of a household. An interesting feature of these cemeteries is the large number of infants and relatively large number of “elderly” individuals. The Icelandic sagas rarely mention children, and the old hand not to be in viewed in a favourable light. By looking at the osteological data in conjunction with spatial and spatial data analysis a more detailed picture emerges providing information on the possibility of these familial 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/ethnographical research pertaining to the museum’s collections and exhibitions, a new light may be thrown on historically "inconspicuous" social groups such as the aged and the young, irrespective of time periods.

TH2-13 Abstract 08
Interpreting Multiple Interments in Irish Medieval Burial Grounds

Author - Dr. Murphy, Eileen, Queen’s University Belfast, Crumlin, Northern Ireland, United Kingdom (Presenting author)

Keywords: funerary archaeology, relationships, skeletal remains
Presentation Preference - Oral

Burials that contain the remains of two, three or even larger numbers of individuals are occasionally discovered during excavations of medieval Christian burial grounds in Ireland. In the majority of cases the remains are those of neonatal infants – perhaps indicative of a multiple birth – in which the infants did not survive, while other examples may comprise the burial of two or more adults. In other instances a full-term fetus remains within the mother’s abdominal region and clearly died prior to delivery. Cases also arise in which a neonate has been interred with an adult female, and it seems likely that many of these may represent cases where both a mother and her baby had died shortly after delivery. Other examples have been discovered in which an adult male was buried with an infant or an older child and was buried with an adult. This paper seeks to provide a methodological framework which include both the youngest and oldest members of society. Bioarchaeologists are now exploring questions related to both infants and the invisible elderly; however, few archaeological contexts present scenarios where both cohorts have been recovered together. Indeed, few scholars have addressed questions related to the interactions of people who lived at the extremes of the human lifespan, as these contexts seem to have alluded bioarchaeologists until now. In this talk, a unique mortuary context from an excavation at a Reform Church in Hungarian Transylvania will be discussed. In 2007 archaeologists participating in a salvage excavation recovered remains of 70 individuals buried beneath the floor of a Reform Church in the community of Telkevics, Romania. The majority of these individuals date to the 17th century and do not appear to have survived long after birth. In addition to the neonatal individuals, the remains of an elderly female individual were recovered from the same stratigraphic context. In this talk, the relationship between these individuals will be explored and tied to a growing body of literature investigating the archaeology of the Reformation.

TH2-13 Abstract 09
Infants and elders: a bioarchaeological investigation of a Reform Church in Hungarian Transylvania

Author - Dr. Bethard, Jonathan, Boston University, Boston, United States of America (Presenting author)

Co-author(s) - Osterholtz, Anna, Mississippi State University, Starkville, United States of America
Co-author(s) - Nyarad, Zsolt, Haa Reszo Muzeeum, Szekelyudvarhely, Romania
Co-author(s) - Gonciar, Andre, University at Buffalo, Buffalo, United States of America

Keywords: bioarchaeology, Reform Church, Transylvania
Presentation Preference - Oral

Bioarchaeologists have added a great deal to what is known about past peoples from numerous time periods and geographical periods. Recent contributions to the field have pushed scholarship in exciting new directions thanks to theoretical and methodological frameworks which include both the youngest and oldest members of society. Bioarchaeologists are now exploring questions related to both infants and the invisible elderly; however, few archaeological contexts present scenarios where both cohorts have been recovered together. Indeed, few scholars have addressed questions related to the interactions of people who lived at the extremes of the human lifespan, as these contexts seem to have alluded bioarchaeologists until now. In this talk, a unique mortuary context from an excavation at a Reform Church in Hungarian Transylvania will be discussed. In 2007 archaeologists participating in a salvage excavation recovered remains of 70 individuals buried beneath the floor of a Reform Church in the community of Telkevics (Telkevics), Romania. The majority of these individuals date to the 17th century and do not appear to have survived long after birth. In addition to the neonatal individuals, the remains of an elderly female individual were recovered from the same stratigraphic context. In this talk, the relationship between these individuals will be explored and tied to a growing body of literature investigating the archaeology of the Reformation.
TH2-13 Abstract 10
The search for the elderly: using osteological data to divide and join age identity

Author - Peacock, Sabine, Bradford, United Kingdom (Presenting author)
Co-author(s) - Maaranen, Nina, University of Bradford, Bradford, United Kingdom

Keywords: age identity, elderly, old age

Presentation Preference - Poster

Inquiries into age identity have only recently received attention, despite the recognition of gender identity in archaeology. Particularly elderly individuals are often ignored or treated with the assumption of a universal experience of old age. Traditional age estimation methods have failed to provide more accurate estimates to aid in the identification of aged skeletons. Individuals of 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 dynamic age profile which shows that age differences are found across gender lines and in terms of disease likelihood. Elderly females have especially stood out since they showed a substantial increase of spinal degeneration of the vertebral bodies, caries and tooth loss as compared to elderly males who show a significant decrease or stagnation in these conditions. Older females however have in common with younger adult females the severity of spinal osteoarthritis in the facet joints in comparison to the young male - elderly male grouping which is less affected. Females generally appear to be more affected by disease, yet elderly females of this population are particularly haunted by ill health which ultimately may have made their deaths and presence in this cemetery more likely. Death also is an important aspect of these women's identity. Other forms of identity are highly important in gauging age differences and relationships between young and old. Age only becomes visible through the growing, gendered or diseased body as a medium in the social experience of age. The archaeological interpretation of osteological data shows that Wetwang Slack age groups have various relationships to one another depending on sex, health or even affected body location. This trait of age 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 in research is not simply a question of attitudes but of methodological limitations. Intrinsic and extrinsic factors govern the skeletal changes in relation to one another, their importance fluctuating during the life course of the individual. The young are much more dependent on the intrinsic (i.e. genetic) factors however with age the extrinsic factors (such as habitual and environmental) gain influence, spreading the skeletal morphological features to a wider age range. Due to the lack of a perfect age indicator methods used to estimate age-at-death, we must accommodate for the variation using age ranges which often present the final interval as open-ended and beginning even as early as 45 years of age. The practice has the impact of obscuring the presence of older individuals from archaeological material, distorting our views of agency in past societies. This poster seeks the final interval as early as 45 years of age. 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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) - Langtiz, Meredith, Archaeological Institute of America, Boston, United States of America
Keywords: Community Engagement, Heritage Education, Partnerships
Presentation Preference - Oral

TH2-14 Abstract 04
The “archaeological path” in the interdisciplinary research in Polish Jurassic Highland
Author - MA Majorek, Magdalena, Nicolaus Copernicus University Torun Poland, Torun, Poland (Presenting author)
Co-author(s) - PhD Lawrynowicz, Olgierd, University of Lodz, Lodz, Poland
Keywords: archaeology XIX-XX century, interdisciplinary research, places of memory and forgetfulness
Presentation Preference - Oral

TH2-14 Abstract 05
Role of archaeology in rise and fall of local tourist industry.
A warning example from Finland
Author - Laulumaa, Vesa, The National Board of Antiquities, Helsinki, Finland (Presenting author)
Keywords: Local Involvement, Media, Tourism
Presentation Preference - Oral

TH2-14 Abstract 06
My Home Ground - past and present
Author - Hjel Madsen, Lena, Museum sanderkorg, Sandberg, Denmark (Presenting author)
Co-author(s) - Dissing, Nina Bangsbo, Municipality of Sandberg, Sandberg, Denmark
Co-author(s) - Purup, Marianne, Visit Sandkorg, Ry, Denmark
Keywords: Art, Ownership, Storytelling
Presentation Preference - Oral

TH2-14 Abstract 07
Giving is having! Everybody is winning!
Author - Archaeologist Lesel, Krietta, Pirkanmaa Provincial museum, Tampere, Finland (Presenting author)
Co-author(s) - Moininen, Ulla, Pirkanmaa Provincial museum, Tampere, Finland
Co-author(s) - Aidel, Vadim, Pirkanmaa Provincial museum, Tampere, Finland
Keywords: cooperation, local people, openness
Presentation Preference - Oral
The Archaeological museum in Zagreb possesses a certain amount of finds acquired in this way and which have a ‘questionable’ origin, and, as the parent institution, it works on entire collections which were subsequently seized from the same collectors which could, only a few years back, make legal trade with the Museum and were legally protected by the aforementioned notary confirmation on family heritage.

What can museums do to prevent illicit trading, archaeological excavations and trafficking?

It is understandable that archaeological museums cannot change the legislation, but their social role is to point out legislative flaws, and I feel that they should individually label collectors outside the law, sellers and malicious metal detector users by highlighting finds obtained in this way in permanent exhibitions and publications, just like they highlight well-intentioned donors. But this is only a cosmetic touch up.

During the last EAA-meeting in Glasgow, the idea rose to re-create an EAA commission on illicit trafficking of archaeological heritage. Our round table is organised by the Working group of this commission.

Antiquities as the ‘hottest invest’ (TIME-Magazine, 12/2007) are one of the biggest problems of archaeology. Finds deriving from unauthorised excavations, metal detecting, robberies of museums/public collections, appear on the market with faked provenience, and are legally sold. The majority of illegal/illicit finds that enter the market, seemingly entirely legally, go unacknowledged by archaeologists. Only rarely do such finds later surface and only few, like the spectacular find of the Bronze Age Nebra-disc, are acknowledged by the wide public. In the case of more mundane finds this rarely ever occurs.

Today, the internet offers an easy and growing platform for rapid exchange of archaeological artefacts, the sheer volume of sales making it hard to keep track of newly advertised finds and sales. Thousands of archaeological artefacts are daily presented through mediums such as ‘treasure hunter’ internet platforms, advertised and sold online through outlets and sold through licensed auction houses.

The reaction of archaeologists has been to largely ignore this market. But the volume of finds entering the market reached already the point where we must begin to address the lack of knowledge, and to what degree our legitimate archaeological find corpus is any longer truly representative, and whether it alone remains valid for future research.

We will focus in particular on how to:
- prevent and limit trafficking and selling of cultural heritage in Europe (especially trafficking of antiquities from the Near and Middle East);
- reduce illegal excavations in Europe;
- develop strategies for a common European legal basis on the protection of archaeological sites;
- Furthermore, we want to discuss an official statement for the EAA concerning illicit trafficking of antiquities.

Acquisition policy - first line of defense

The legislation of the Republic of Croatia allows for the sale of individual archaeological finds or entire collections to museums, if the seller can prove the origin of the cultural good in the sense of family legacy or heritage. In practice, the easily obtainable confirmation of a notary on the origin of the good is the only thing required to prove the legality of such possession and to enable such sales.

The Archaeological museum in Zagreb possesses a certain amount of finds acquired in this way and which have a ‘questionable’ origin, and, as the parent institution, it works on entire collections which were subsequently seized from the same collectors which could, only a few years back, make legal trade with the Museum and were legally protected by the aforementioned notary confirmation on family heritage.

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Illicit trafficking of archaeological heritage

Illicit trafficking of archaeological heritage is certainly one of the best long-term protection methods 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. Illicit trafficking of archaeological heritage results in the preservation of archaeological resources, including the direct destruction of sites and museum institutions, the looting and illegal export of artifacts, to ignore the issue, and finally limited legal advocacy for legal punishment. Unfortunately, throughout the 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 1990s 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 in that, in the long-term, has made archaeological sites inaccessible for research. The post-war period brought even more problems. For example, there was no institutional cooperation, except in some individual cases, during the process of clearing thousands of square kilometers of land from mines with metal detectors. We can imagine that great numbers of objects have been found but only a small portion ended up in museum collections while the rest probably entered the illegal market. A more recent problem is the phenomenon of illegal metal detecting. In some cases it is conducted by war veterans who are protected within local communities because of their contribution to the defense of the country. There are some attempts at coordination between local museums and these "enthusiasts", but it seems that such relationships are still not clearly defined. Although a number of objects end up in museums, most of these "donors" have rich private collections partially or completely unknown to archaeological experts. In addition to cases of illegal metal detecting along the Croatian coastal area, there is a large problem with the looting of ancient shipwrecks in which a large number of artifacts, mainly amphorae, are placed on the illegal market. Similarly to most post-communist societies in Central and Eastern Europe, the transitional period in Croatia has also created a framework for a new social elite to emerge, and their social status is often confirmed with high-end art collections that sometimes include archaeological objects. There have been cases of high-ranking civil servants in whose possession illegally acquired artifacts have been found. In the last few years, some progress has been made in the legal sanctioning of individual dealers, with several confiscated collections and filed criminal charges.
CLIMATE CHANGE AND HERITAGE:
IMPACT AND STRATEGIES

Thursday, 1 September 2016, 14:00-18:30
Faculty of Phylology, Room A7

Author - Biehl, Peter F., University at Buffalo, Buffalo, United States of America
Co-author(s) - Curtis, Caitlin, SUNY Buffalo, Buffalo, United States of America
Co-author(s) - Vindrup Martens, Vibeke, Norwegian Institute for Cultural Heritage Research, Oslo, Norway
Co-author(s) - Kars, Eva, EARTH Integrated Archaeology B.V., Amsterdam, Netherlands
Co-author(s) - Dalen, Elin, Riksantikvaren/Directorate for Cultural Heritage, Oslo, Norway
Co-author(s) - Johansen, Kristine, Riksantikvaren/Directorate for Cultural Heritage, Oslo, Norway

Presentation Preference - Oral

Cultural Heritage represents more than a modern-day capital resource - it is our legacy from the past and our legacy for future generations. Cultural Heritage leaves a profound imprint on our lives, our cities, and our nations. Although “climate change” can be defined differently by researchers and misunderstood by the popular media, and thus can refer to a multitude of various things, recent research on sea-level change, melting glaciers and permafrost areas - just to name a few - have motivated the global heritage community to begin asking questions about how to better research the impact and affects of climate change on our cultural heritage, as well as how to develop sustainable strategies and mitigation tools to preserve it. Since the introduction of the Valletta Treaty, in situ site preservation has increasingly become the preferred option in cultural heritage management. However, to ensure continued preservation, one needs to know what is currently preserved and to what degree, as well as to what extent changes in temperature, precipitation, or sea level will affect continued preservation. If sites are threatened by these changes, we should be prepared with strategies for how to manage this. This can range from strategies to mitigate the effects to tools to decide when in situ preservation is no longer an option, such that the only way to save a site is by excavation and digital documentation. This session thus invites speakers to discuss such themes as impacts of climate change on cultural heritage, evaluation of site degradation, and sustainable mitigation strategies for different site types.

TH2-17 Abstract 01
Threats to Heritage and the Distributed Observing Network of the Past: A Northern View

Author - Prof. McGovern, Thomas, Hunter College CUNY, New York, United States of America (Presenting author)
Keywords: Climate Change and Heritage: Impact and Strategies, Climate Impact, Heritage Loss, Northern Presentation Preference - Oral

Climate change is impacting archaeological sites all over the world, as rising sea levels, increasing storminess, wind erosion, and a range of extreme weather events damage sites and monuments. These processes are ongoing, and in northern and alpine regions the threat of rising soil temperatures and "melting middens" broadens the threat to sites far inland. In SW Greenland, recent survey data indicates only a handful of sites retain once excellent conditions of organic preservation (three of nearly a hundred sampled). In the Bering Sea and N Alaska sites spanning thousands of years are going into the sea across broad coastlines. This loss impacts both cultural heritage and the scientific value of "a distribute observing network of the past" of great value to modern resource managers, climate models, and planners for a sustainable future. A host of new techniques including aDNA, stable isotopes, and trace element analyses are now broadening our understanding of past food webs and biogeography - just as some of our most valuable archives are being destroyed forever. However, multiple agencies and communities are coming together to catalogue these threats, combining disciplinary science and humanities within the full engagement of local communities. This paper presents some of the strategies for collaboration being developed in cooperation with the Society for American Archaeology's Climate Change Strategies and Archaeological Resources committee and the IHOPE Threats to Heritage and the Distributed Observing Networks of the Past program.

TH2-17 Abstract 02
Mitigating Climate Change Effects on Heritage Sites?

Author - Dr. Martens, Vibeke Vindrup, NRK - Norwegian Institute for Cultural Heritage Research, Oslo, Norway (Presenting author)
Keywords: In situ preservation, mitigation, Northern Norway Presentation Preference - Oral

Future climate change is expected to raise sea levels, increase temperatures and change the overall precipitation patterns, with a potentially great negative effect on preservation conditions. How should cultural heritage management respond to these threats? In order to prepare adequate mitigation schemes, it is necessary first to know exactly what is the area is trying to preserve, what state it is in now, and what the conditions for in situ preservation are. Degradation of archaeological remains depends on environmental conditions. Which measures may be taken to mitigate the predicted climate changes and ensure continued in situ preservation of heritage sites? Should they be covered, or can changes in soil chemistry be stopped? Studied sites in Northern Norway are used to demonstrate impacts and possible mitigating actions.

TH2-17 Abstract 03
Climate Change and its Impact on Cultural Heritage

Author - Dalen, 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, Sjølkrer 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 Sjølkrer watercourse in the South of Norway is subject to all of this, and we foresee many challenges for the preservation of the cultural heritage in the area.

TH2-17 Abstract 04
A Climate Change Impact and Risk Assessment for the Historic Environment Scotland Estate

Author - Dr. Davies, Mairi, Historic Environment Scotland, Edinburgh, United Kingdom (Presenting author)
Co-author(s) - Tracey, Emily, British Geological Survey, Edinburgh, United Kingdom
Keywords: Adaptation, Climate Change, Conservation Presentation Preference - Oral

As a large public body, Historic Environment Scotland (HES) has duties under Part 4 of the Climate Change (Scotland) Act 2009 that require it to contribute to climate change mitigation and adaptation, and to act sustainably. Ministers have identified HES as a ‘Major Player’ because it has a larger influence/impact on climate change than other public bodies. A Climate Change Action Plan for Historic Scotland 2012–2017 sets out how HES will fulfil its duties under the Act, The UK Climate Change Risk Assessment 2012 identified a range of risks and opportunities that climate change may present. Many of these have the potential to impact on the historic environment. HES is key to the delivery of Climate Ready Scotland: Scottish Climate Change Adaptation Programme, which takes it with the following:

• quantifying heritage assets affected by climate change using GIS
• developing a methodology for assessing climate change risk to historic sites
• creating a risk register for the ‘Properties in Care’ that are managed by HES (to assist with management planning and resource allocation).

In response, HES has undertaken a research project in partnership with the British Geological Survey (BGS) that sets out to identify the threats associated with climate change (such as slope instability and flooding) that have the potential to impact on the HES Estate. The results are assisting HES in preparing a risk register for the properties across the HES Estate and in shaping and prioritising on-going conservation and maintenance programmes. The research will also inform the development of a methodology for the broader historic environment.

TH2-17 Abstract 05
Managing coastal heritage as climates change

Author - Graham-Allsopp, Elnor, University of St Andrews, St Andrews, United Kingdom (Presenting author)
Co-author(s) - Dawson, Tom, University of St Andrews, St Andrews, United Kingdom
Co-author(s) - Hamby, Joanna, University of St Andrews, St Andrews, United Kingdom
Keywords: Coastal Archaeology, Erosion, Scotland Presentation Preference - Oral

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Scotland’s vast coastline contains a wealth of archaeological sites, many buried under shifting sand dunes which has led to remarkable levels of preservation. Coastal erosion, accelerated by climate change, is impacting on thousands of these invaluable heritage assets. In recognition of the severity of the threat, the SCAPE Trust was established with a remit to research, conserve and promote the archaeology of Scotland’s coast.

Since the mid-1990s, Historic Scotland (now Historic Environment Scotland), has sponsored a series of Coastal Zone Assessment Surveys (CZAS) of the coastline in order to quantify the condition and threats to Scotland’s coastal archaeological resource. These surveys have targeted vulnerable areas and covered over 40% of the entire coastline. As well as assessing the geology, geomorphology and erosion risk of coastal cells, more than 11,500 heritage sites have been recorded. A prioritisation process taking account of a site’s value, vulnerability and condition this dataset and classified nearly 1,000 sites as requiring attention.

Following prioritisation, SCAPE initiated the Scotland’s Coastal Heritage at Risk Project (SCHARP), which worked with members of the local community to update and enhance this data, focusing on high-priority sites. The citizen science approach created a network of volunteers to monitor vulnerable sites in the dynamic coastal zone. As monitoring alone does not save threatened sites, SCAPE has also worked with community groups to undertake action at locally-valued sites. As preservation in situ is impractical or impossible in many coastal locations, the main aim is to rescue as much information as possible from these sites. A variety of strategies, from innovative digital recording and excavation to relocating and reconstructing sites have been deployed. The next project aims 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 sea methodologies employed to mitigate the sites threats face, consider the application of citizen science to the problem of coastal erosion and give case studies of some of the differing strategies used to preserve vulnerable coast sites by record.

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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 archaeo- logical and palaeoenvironmental resource can assist study of past climatic and environmental changes, the environmental impacts of human activity and the responses of communities to geomorphological processes and events. Particularly in industrial landscapes, such work also has the potential to identify the legacy of past pollution and its impacts upon ecosystems and future geomorphic thresholds.

Whilst the historic environment record has the potential to inform environmental managers, it is important that the archaeological community adopts a holistic approach to examining landscapes, within clearly identified research frameworks that provide equal weight to individual sites and more expansive terrain units. This paper provides an example of such a framework, developed within the Trent catchment along the riverine corridor dominated by the historic mills of the 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 geoarchaeological 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 07
Submerging Heritage: Forecasting Climate Change Impacts to Set Preservation and Research Priorities

Author - Dr. Heilen, Michael, Statistical Research, Inc., Haymarket, United States of America (Presenting author)
Co-author(s) - Atchel, Jeffrey, Statistical Research, Inc., Tucson, United States of America
Keywords: archaeological modeling, climate change, heritage management
Presentation Preference - Oral

This paper will look at two aspects of the effect of climate change on archaeology and cultural heritage in Wales. Firstly there is the need to reduce carbon emissions by increasing the use of renewable energy. However onshore wind and solar electricity generation has polarised public opinion, with many seeing them as a blight on the landscape. Although such installations may have an impact on archaeological and cultural heritage sites, the principal concern – both for heritage professionals and the public is their impact on the wider landscape and the setting of heritage assets. In many ways the windfarm debate in twenty-first century Wales echoes nineteenth- and twentieth-century contestation over the loss of landscapes when reservoirs were created to supply water to English cities. Secondly, very significant damage to archaeological sites has taken place around the Welsh coastline in recent winters. Erosion has sometimes destroyed the historic environment, but it has also enabled new discoveries. The problem has been in providing resources to ensure that the archaeology is recorded or preserved – and one very successful response has been the ‘Arfordir’ scheme run by the Welsh Archaeological Trusts training large numbers of volunteers to identify and record coastal heritage sites, and the changes that are happening to them. Discussion will focus on the role of archaeological curators, commercial contractors and public bodies in managing these cultural heritage challenges. What impact is climate change having on the cultural heritage, and how effective is the system in Wales at mitigating those impacts?

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TH2-17 Abstract 08
Sun, wind and rain: renewable and non-renewable resources in Wales

Author - Balford, Paul, Clywd-Powys Archaeological Trust, Welshpool, United Kingdom (Presenting author)
Keywords: heritage management, renewable resources, Wales
Presentation Preference - Oral

This paper will look at two aspects of the effect of climate change on archaeology and cultural heritage in Wales. Firstly there is the need to reduce carbon emissions by increasing the use of renewable energy. However onshore wind and solar electricity generation has polarised public opinion, with many seeing them as a blight on the landscape. Although such installations may have an impact on archaeological and cultural heritage sites, the principal concern – both for heritage professionals and the public is their impact on the wider landscape and the setting of heritage assets. In many ways the windfarm debate in twenty-first century Wales echoes nineteenth- and twentieth-century contestation over the loss of landscapes when reservoirs were created to supply water to English cities. Secondly, very significant damage to archaeological sites has taken place around the Welsh coastline in recent winters. Erosion has sometimes destroyed the historic environment, but it has also enabled new discoveries. The problem has been in providing resources to ensure that the archaeology is recorded or preserved – and one very successful response has been the ‘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.
Moreover, for the coming decades the expansion of the infra structure, for example the directive of renewable energy (see abstract in session Abstract nr. TH2-12), confronts and challenges us how to deal with the known and still unknown climatic impacts on cultural heritage.

In this presentation we will discuss known parameters of climate change and the possible impact on the cultural heritage in the Netherlands, such as more and heavier rainfall, alternating with periods of drought, temperature rise and a predicted sea level rise. Expected consequences of climate change are higher groundwater levels in general, but also very strong changes in water levels between drier and wetter periods. A temperature rise will give longer warm periods, which in turn will prolong the growing season and thereby the decomposition process of organic material in the soil. Sea level rise can have effect on the salinity of the groundwater, which will result in a more rapid degradation of some of the archaeological data.

Both sea level and intensifying peak flows of rivers, require precautions to be taken in the Netherlands. Therefore, the national Flood control program foresees a reinforcement of 700 km of levees within the presence of high parts from long levee systems in the Netherlands contain historic dike remnants. In addition, long the rivers, the shores are being made "natural" again to let the water flow over land to prevent uncontrolled flooding. These engineering projects give us possibilities to study not only the adaption of man to changing environmental conditions through time, but they also give us a possibility to create different strategies for cultural heritage to be preserved for the future, in relation to expected climate changes. In the presentation some examples will be presented.

TH2-17 Abstract 10
Sustainable energy versus sustainable heritage
In The Netherlands
Author - Kars, Eva, EARTH Integrated Archaeology B.V., Amersfoort, Netherlands (Presenting author)
Co-author(s) - Van Rooijen, Cees, Cultural Heritage Agency of the Netherlands, Amersfoort, Netherlands
Co-author(s) - Berendsen, Ton, Fugro GeoServices B.V., Leidschendam, Netherlands
Keywords: In situ preservation, spatial planning, sustainability
Presentation Preference - Oral

The Netherlands is not only a small country but also a country with large storage of archaeological remains dating from all periods. Therefore, the Netherlands is also one of the most densely populated areas in the world which means that the archaeological heritage is under severe pressure and is always threatened.

It is a big challenge already to combine the exploitation of infrastructure and other expansion and the in situ preservation of the heritage. As a 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 subsoil spatial planning policy vision called STRONG. This emphasize more and more the involvement of archaeology for the sustainable planning and vice versa.

In this presentation we will discuss how the exploitation of green energy, both offshore and onshore, will challenge the care for archaeological heritage within the Netherlands. What areas are/will be explored? When analyzing the maps of exploration and the maps of the expectations of archaeology in this areas, will you see a conflict or synergy? What type of heritage is threatened and what is the threat in physical damage? And what is the scale of the threats.

But also are there possible advantages for the archaeological heritage? The combination of smart surveys and existing data could be beneficial for windfarming. The ambitions for onshore wind are high but the public opinion is low. Could the investigation of local archaeology have a positive effect on this public awareness for windfarming onshore? Are there major consequences for archaeology in the EU directives or are we only busy with meaningless directives?

TH2-17 Abstract 11
Iced heritage. First World War heritage in frozen contexts in the Alps
Author - Dr. Nicolas, Franco, Ufficio beni archeologici - PAT, Trento, Italy (Presenting author)
Keywords: Global warming, WW Archaeology
Presentation Preference - Oral

Global warming is changing the alpine landscape. The retreating of the glaciers is a climatic emergency, but is taking with it a cultural emergency. The melting of ice is bringing to light evidence of the human presence at high altitudes from prehistory (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 Limone (3692 metres a.s.l.) in the Ortles Credawale group, Trentino region, Italy is presented. Punta Limone 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 Limone, characterised by the presence of a town, cemeteries, and a large number of artefacts. The original structures were destroyed and the material found there, have been relocated. In summer 2015 more than 2100 people visited the site during 55 days of opening.

TH2-17 Abstract 12
An integrated approach to sustainability: eco-cultural heritage practice at Aktoporaki, Turkey
Author - Curtis, Catlin, University at Buffalo, Buffalo, United States of America (Presenting author)
Keywords: community, heritage, sustainability
Presentation Preference - Oral

Community participation and sustainability are now widely recognized as crucial strategies in heritage practice. This paper thus presents a case study that utilizes an ethnographic methodology, including interviews with over 70 residents in Aktoporaki, Bursa, Turkey, the local context of Neolithic-Chalcolithic Aktoporaki Höyük.

With the aim of trying to understand sustainability and heritage within the terms of the community, newly gained information can now aid in forging a symbiotic relationship between archaeological sustainability, environmental sustainability, and community sustainability.

When discussing what was most valued locally, many noted that Uluabat Gölü was among the most cherished assets in town. The lake, upon which the town is located, has long been a site for traditional community festivals, and is now used as a family picnic venue for locals and outsiders alike. The lake also attained Ramsar status in 1998 for its rich wetlands and extraordinary waterbird population. However, Uluabat Gölü was also the initial site of industrial development in town over 30 years ago, with the first factories to open settling on the lake edge. These factories deposited waste in the lake, and with time, a place that had been a local source for recreation, fishing, and irrigation became nearly unusable.

In recent years, local government measures to more strictly regulate factory pollution, as well as efforts to clean the lake spearheaded by a local university, have begun to improve the water quality in the lake. However, at the same time, many note that the local government has not made a significant effort to maintain and develop the shore of the lake for the public or for visitors, with littering a continuing problem. Indeed, many locals noted the untapped potential of the lakeshore in Aktoporaki for attracting tourists, especially considering the existing tourist attraction of Golyazı island just a few kilometers away at the center of the lake.

During the spring, as Uluabat lake is a valuable resource for local biodiversity and tourism. The lake also provided a local source for recreation, fishing, and irrigation became nearly unusable.

A hot topic is the Dutch approach for combining all functions, characteristics, consistency into one subsoil spatial planning policy vision called STRONG. This emphasize more and more the involvement of archaeology for the sustainable planning and vice versa. In this presentation we will discuss how the exploitation of green energy, both offshore and onshore, will challenge the care for archaeological heritage within the Netherlands. What areas are/will be explored? When analyzing the maps of exploration and the maps of the expectations of archaeology in this areas, will you see a conflict or synergy? What type of heritage is threatened and what is the threat in physical damage? And what is the scale of the threats.

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TH2-17 Abstract 13
Local Heritage Societies Adapting to Climate Change
Author - Archaeologist Grahn Danielson, Benjamin, Picea kulturarv, Fors, Sweden (Presenting author)
Keywords: climate change adaption, Djalsland, Local heritage societies
Presentation Preference - Poster

During the autumn 2015, SMHI – Swedish Meteorological and Hydrological Institute, published new Climate Scenario Reports for all counties in Sweden. As one of the county archaeologist at the County Administrative Board in Dalarna I was involved in a project about climate change, crisis and cultural heritage, and I suddenly realised how climate change will impact my everyday life.

During the autumn 2015, SMHI – Swedish Meteorological and Hydrological Institute, published new Climate Scenario Reports for all counties in Sweden. As one of the county archaeologist at the County Administrative Board in Dalarna I was involved in a project about climate change, crisis and cultural heritage, and I suddenly realised how climate change will impact my everyday life.

In Dalarna, the County Administrative Board, started to inventory the cultural values that could suffer most, and create action plans, and communicate them to the emergency services. As a part of the course Integrated Conservation at Gothenburg University I would like to explore what was happening in other parts of Sweden. The authorities was probably on the track all over the country, but how about the local heritage societies? In this poster I present the results of a survey about climate change and adaptation among local heritage societies in Dalarna, in the western part of Sweden.
PREVENTIVE ARCHAEOLOGY, SCIENTIFIC RESEARCH AND ECONOMIC DEVELOPMENT

Saturday, 3 September 2016, 09:00-18:30
Faculty of Philosophy, Room 214p

Authors: Demoule, Jean-Paul, Université de Paris I Sorbonne, Arles, France (Presenting author)
Coauthors: Guerandini, Maria-Pa, Istituto Beni Culturali - Regione Emilia Romagna, Bologna, Italy

Presentation Preference - Oral

Is it possible to reconcile three seemingly contradictory requirements that are 1) infrastructure works and their economic implications, 2) preventive archaeology as set out in national legislations following the Malta convention, and 3) structured and genuinely scientific archaeological research? While legal systems have been put in place in different countries after the signature of the 1992 Malta convention, numerous problems of implementation and reconfiguration still remain, often exacerbated by the 2008 economic crisis. In fact, legal positions have actually been eroded in some countries, and additional constraints such as shortened delays and narrower margins have been imposed on archaeological organisations and operations. Moreover, in countries where archaeology is predominantly conceived as a commercial activity, the crisis has thrown numerous organisations into a cost-cutting spiral, with as a side effect, in many cases, the reduction of standards both in terms of employment conditions and of scientific production.

The current session, building on related sessions and round tables regularly promoted by the “Committee on Archaeological Organisation and Legislation” at previous EAA meetings, seeks to present the current state of affairs with regards to preventive archaeology, legislation and scientific research in various countries. Our intention is not only to critically appraise a range of case studies, but also to provide some more general arguments and tools for thought to those seeking to promote, towards the third decade of the 21st century, this challenging reconciliation of scientific, patrimonial and socio-economic aims.

TH2-19 Abstract 01
Rescue and Preventive Archaeology in Europe: Public Service or Commercial Activity?

Author: Prof. Demoule, Jean-Paul, Université de Paris I, Paris, France (Presenting author)
Keywords: commercial competition, Preventive archaeology, scientific research

Presentation Preference - Oral

While the term heritage normally refers to the transmission of property within a family, the term Cultural or Archaeological heritage refers to a national or ethnic community. Although national identities in the modern sense of the term only appeared in the early 19th century, there have for some time been two different conceptions of the State in the western world. In countries based on Roman law such as France, the State, even if it is disliked, is central to the conception of society. In “common law” Anglophone countries, and especially the USA, the State has never been complete legitimate. This view was further reinforced in the nineteen-eighties through the domination of Milton Friedman’s free-market ideology and the Reagan and Thatcher governments. In a sense, there is no real society any more, only a juxtaposition of consumers, buying or not buying goods and services in a market controlled by an “invisible hand”.

As we know, the State was rediscovered in 2008, when the western banks had to be rescued. Yet this ideology also partly affects the perception 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 manyexcavations 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. In November 2015 a large group of English archaeologists met in Parliament to celebrate the 25th anniversary of the publication of Planning Policy Guidance Note 16 on Archaeology and Planning. Historic England also marked the occasion with a digital publication Building the Future, Transforming our Past (see: https://historicengland.org.uk/images-books/publications/building-the-future-transforming-our-past/).

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 otherwise would have been destroyed by development, without record.

The quarter-century anniversary of this change provides an opportune moment to reflect on the changes that have been wrought in the intervening period. In terms of resources directed to the study of archaeology, the revolution in understanding that has generated and the growth in professionalism in our discipline, the change in policy has been a major success. But it has also created challenges.

This paper will review the achievements of the last 25 years and the balance of benefit and problem that now faces the archaeological profession in England.

TH2-19 Abstract 03
Identifying research aims at the earliest stage of large development plans, first thoughts matter!

Author: Allan, Tim, Historic England, Northampton, United Kingdom (Presenting author)
Keywords: early assessment, major development, research priorities

Presentation Preference - Oral

‘Development led’ (preventive) archaeology is still regularly contrasted to ‘research archaeology’. In the UK the former is done largely by commercial organisations (contractors), the latter mainly by universities and community groups with public or charitable funds. This use of language beaks a considerable shift in intent over recent years, from both archaeological curators and contractors, and considerable crossover with many contractors undertaking both commercial and not for profit projects.

The development of national and regional research assessments, agenda and strategies (e.g. in England ‘Regional Research Frameworks’) has sought to ground archaeological practice in an explicitly aims and evidence based approach. For archaeological assessment and mitigation to produce meaningful results it must work iteratively, we need therefore to formulate initial questions from first sight of a project. Archaeological curators are mostly public employees working for local and national governments, agencies and institutions; they have limited time and relationship capital to spend. To influence outcomes, key research questions must be identified early in process (especially concerning absence of knowledge). If an archaeological impact, in particular a setting impact, is to be mitigated or eliminated (for a planning outcome influenced) both the affected historic asset, its significance and the impact must be understood. Focused research is required to understand these issues, their gravity and what might be done, and it is rarely feasible to raise them late in a project options and design process.

How can archaeological curators and contractors integrate research into large scale development projects and avoid slipping into mechanical processes which simply translate and transform remains to archive? We know what we ‘should do’ but require an understanding of practice and an articulation of the niche 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.

TH2-19 Abstract 04
Trends in Scandinavian cultural heritage management in the 2010s

Author: Professor Hakon, Glorstad, University of Oslo, Oslo, Norway (Presenting author)
Keywords: development-led archaeology, Heritage management, Scandinavian models

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 otherwise would have been destroyed by development, without record.

The quarter-century anniversary of this change provides an opportune moment to reflect on the changes that have been wrought in the intervening period. In terms of resources directed to the study of archaeology, the revolution in understanding that has generated and the growth in professionalism in our discipline, the change in policy has been a major success. But it has also created challenges.

This paper will review the achievements of the last 25 years and the balance of benefit and problem that now faces the archaeological profession in England.
Since the 1990s the Scandinavian countries have in various ways tried to adjust cultural heritage management and development-led archaeology according to the national political thinking on the one hand and Pan-European legislation on the other. Sweden is probably the most radical in Scandinavia where the most radical, modernistic reforms have been implemented. The success of these reforms has however been questioned. Still, far-reaching changes are nevertheless introduced. Local, Scandinavian solutions are challenged by organisational models from the larger European countries and by EU legislation. This paper addresses some of these trends and tries to analyse the status of Scandinavian archaeology as a scientific discipline. Theoretical trends undermining the importance of humans may enhance or describe the power of EU directives as an inevitable destiny of Scandinavian archaeology. This thus makes the fact that archaeological engagement with politics on a national level is of major importance for the future of European Archaeology.

TH2-19 Abstract 05
Development in preventive archaeology in Slovenia: a view from the field

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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 Slovenia provinces belonged to the Austrian Empire). Since then, Slovenia has passed through great political changes to become independent country in 1991 with the end of former Yugoslavia. More than 150 years of legislation in heritage protection is an important factor also when considering the development of preventive archaeology today. General institutional framework and doctrine of protection was for decades tied to the Austrian tradition (even after 1818), and Slovenia kept probably the best organized and efficient heritage service in former Yugoslavia with well developed regional network of heritage protection institutes. Legal transformation of old ‘Yugoslav’ system started early in the 1990s, but it was not these changes which are directly associated with the introduction of preventive (rather than rescue) archaeology. In fact, it was great pressure posed by national program of motorways construction in the early 1990s, which considerably challenged the existing (traditional) system of protection, and required answers in terms of preventive strategies. It is in this context in which also the Malta Convention became rather urgent to be implemented - played major role. 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 SMEs 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 issues of protection conditions and recommendations (i.e. heritage institutes) to monitoring of archaeological field research. The actual research was undertaken by SMEs or by public instructions which have a right to compete in the market (e.g. museums, academic institutes).

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 researchers. 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

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Co-authors - Monseu, 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 report 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 draft of the current situation: is the article 7 just applied? If it is the case, how do the operators of preventive archaeology do in Europe?

The issue underlay is that of the harmonization and the sharing of archaeological data. In that perspective, thinking the harmonization of the spatial data appears to be one of the answers: Archaeology is, above all, a spatial science and it seems thinkable to find a general agreement on the way of representing the spatial data. The issue of production, harmonization and management of archaeological data has become by now central, in relation to the huge diffusion of GIS and Web Mapping.

Based on this premise and on two practical experiences developed in very different contexts, this paper aims to give a contribution toward the definition of a minimal spatial and archaeological value, useful to the production of archaeological cartography on a European scale.

TH2-19 Abstract 07
Preventive archaeology in current Slovakia

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Keywords: archaeological heritage, preventive archaeology, Slovakia
Presentation Preference - Oral

Cultural heritage and its protection is regulated in the number of laws in Slovakia. Basic mentions in the Constitution refer to individual laws, regulating cultural monuments, historic sites, archaeological heritage, museums, galleries, libraries, archives, artistic works or intangible heritage.

From the point of view of archaeology, archaeological heritage, its protection and management, the Act on Protection of Monuments and Historic Sites Nr. 48/2002 Coll. is the most important law, fully regulating the preventive archaeology as a whole. Also legislative competences are applied by the central State Board of the Slovak Republic and its regional branches. They monitor and supervise all activities with potential impact on the archaeological heritage, then they decide on necessity of conducting of research, its conditions and time frame as well as on offences. Their legal position in the Act is very strong, but their personal capacities (usually there are 2 or 3 archaeologists for one region) are low.

Since the last important amendment of the Act in 2014, there is express provision defining and regulating the preventive research. Previously there was no definition of preventive nature of the research, although this kind of research was often assessed as one of the conditions of the research, especially for long-term and spatially large projects.

Preventive archaeology is conducted by licenced organizations in Slovakia; the licence is granted by the Ministry of Culture of the Slovak Republic, taking into consideration opinion of Licence Commission, its advisory body. Currently (February 2016) there are 38 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 is the first licence for private company was granted only in 2007. Independently on the quantity or quality of archaeological finds, they must be stored in the museum after the finish of the research and elaborating of documentation.

The economic crisis caused substantial consequences in the preventive archaeology sector, but the impact on the practice was probably not so hard than in other countries with different legal situation and research tradition.

TH2-19 Abstract 08
Preventive archaeology should not be reified!

The case of the history of Swiss motorway archaeology

Author - Jobin, Paul, Institut d’archéologie, Les Bois, Switzerland (Presenting author)
Keywords: History, Preventive Archaeology, Switzerland
Presentation Preference - Oral

The current economic crisis affects preventive archaeology because of the decrease of investments in the civil engineering sector and the public austerity measures. In other cases the functioning of preventive archaeology is simply prejudiced by new public
management initiatives. Such deleterious effects can also affect countries which are less affected by the economic crisis. Thus, we have to develop strategies to maintain or preserve preventive archaeology whilst its establishment has not been considered as accomplished. At the same time, through the crisis of preventive archaeology, new debates appear about the relation between science and heritage.

Finally, we can ask these questions: What do we really have to maintain? What exactly should we accomplish?

This presentation proposes an analysis of the historic development of preventive archaeology in Switzerland since the end of the 1950s. The particularity of preventive archaeology in Switzerland is its early development under the impetus of a long-term motorway construction programme which has been in progress for 60 years. Another particular characteristic of preventive archaeology in Switzerland is the framework of the Swiss political system which is a Federal State with significant autonomy within the 26 cantons and half-cantons which make up the country. Thus Switzerland can be considered as a "European Union" in the centre of Europe, making it an interesting case for comparative study.

Through this historic analysis we will see that preventive archaeology is the result of a continuous and irregular evolution of different practices and numerous processes. They come from different origins: methodology, science, technique, administration, politics and economics. Consequently, the practice of preventive archaeology has been planned through different organizational and procedural forms within the different political entities responsible for its application. Therefore, preventive archaeology is an a monolithc ideal model to be established. On the contrary, preventive archaeology consists of several paradigmatic principles related to heritage preservation. Moreover, these principles can be applied very differently from one political state to another.

In conclusion, if we accept that the current state of preventive archaeology is not an end in itself that need to be protected, but that it constitutes a paradox of research concerned with the preservation of cultural heritage, we should then recognize that the manner in which preventive archaeology is organised can be regularly re-negotiated within civil society so that it is adapted to the evolution of the research context and, last but not least, to our scientific ambitions.

TH2-19 Abstract 09

The Archaeologies of different times and contexts, as seen from the east part of Western Europe

Author: Dr. Staaboll, Harald, Heritage Office Saxony, Germany

Presentation Preference: Oral

After 1945 many new large infrastructural works were necessary in all parts of Europe but only very few development-led large scale projects were accomplished by appropriate rescue excavations. The major political changes around 1990 showed a similar impact on economy resulting in a huge amount of new construction activities, first mainly in the east part of Europe. But from the point of view of the archaeological management of large scale invasive developmental projects the economic conditions as well as the societal acceptance after the 1990s differed in comparison with post-war Europe. This may partly be an effect of the Valetta Convention from 1992, which was itself a result of many years of 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 aspired 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

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 federal government. Section 110 of the Act further requires federal agencies to identify and manage heritage resources within their jurisdictions. A large and robust heritage resource management industry has developed in the United States around these requirements. The thousands of archaeologists employed each year as a result of the Act have resulted in tremendous stores of data and in some cases spectacular research findings. Yet, the vast majority of projects are small and disconnected from larger research programs, with their purpose, location, schedule, and level of effort determined by development and other needs, rather than scientific research.

Moreover, project planning and management is often focused on reducing costs within a competitive environment. While many projects are largely compliance-driven, some organizations have managed to develop research-driven approaches that allow for cumulative research to be conducted within a preventive context. In this paper, we discuss our approach of using archaeological research to conducting research within two different regions of the Western United States – coastal southern California and the desert Panapagues of southern Arizona – by developing regional programs, accumulating data from numerous small projects to achieve appropriate samples and contexts for research, focusing on projects with strong research potential, developing analytical and database tools, cultivating research-oriented staff, and seeking, as a company, to address long-term research goals in the regions we investigate.

TH2-19 Abstract 11

The system of organisation of Czech archaeology

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Keywords: Czech Republic, Legislation, Preventive Archaeology

Presentation Preference: Oral

The current effective heritage law in the Czech Republic entered into force already in the year 1987. Even though the law was created in the environment of socialist state, it was designed in a very progressive way. Despite the fact that the law was not significantly revised since it had become effective it still fulfils the majority of obligations that the Czech Republic undertook to do by joining the Valetta convention in 2000.

However, lawyers 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 works. 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 potter pays" has caused that the licenced organizations are using the rescue archaeological field work as one of their major financial sources.

The Institute of Archaeology of the Czech Republic holds in organisation of the Czech archaeology a privileged position. The Institute is the only organization entitled to conduct archaeological field work directly by the law. Furthermore, it has the right to significantly influence the issuing of a new licence to conduct archaeological research (the power of veto), collect information regarding the ongoing archaeological field works, archive Excavation reports and, to a certain degree, to control their quality. However, the effective law does not stipulate any evident standards of archaeological research and, thus, its quality varies quite significantly in the Czech Republic.

As far as law-making process is concerned, unclear specification of regulations, rights as well as obligations on the side of not only licenced organizations but also developers, property owners and state administration represents fundamental problems of the Czech archaeology. This state of affairs can be solved only by passing of a new law.

TH2-19 Abstract 12

Rethinking Preventive Archaeology: classification of the land as a starting point

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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, and we developed a specific model (published in 2007). But, we have observed the proliferation of uses/abuses of the "preventive/archaeology" (PA) term as a synonym for salvage archaeological, rescue archaeology, emergency archaeology, as a result of preventive policies, etc. We argue once again here, the idea of Preventive Archaeology as an integrated strategy. Land classification (in an urban sense), including its archaeological potential, is the first and most step. In our model of preventive archaeology, it is possible to combine research, development infrastructures and the contributions of the Malta Convention. Our proposal is based on the European standards on Environmental Assessments (Strategic Environmental Assessment Plan and Environmental Impact Assessment for projects) to establish Reserve Zones ("untouched areas") and Caution Areas (for interim protection of construction projects) in the territorial planning of European territories. The implementation of this model will not only achieve a decrease in the number of archaeological rescue or emergency interventions, but will also allow to design archaeological research based on its knowledge, without it being the decision of the public or private civil work.
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 impacting 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?
Generally, commercial archaeological units in the United Kingdom perceive field archaeology in general; and osteological, zoological, ceramic and of course geophysical analysis as tried and trusted good things. The basic dig it collect what is there as finds, wash the finds and have experts look at them and give dates and functions for the various layers and a real interpretation can be applied satisfactory to all.

None of this of course relies on good scientific techniques, it is comparison archaeology and relies on experience and gained knowledge and personal interpretation. Modern archaeology has made great strides in adopting a more rigorous approach to the process of interpretation. Thus Specialists and technician capable of performing Geochemical, X-ray, Geological, Landscape and Environmental analysis are viewed with suspicion and are perceived as being expensive, confusing in the ambiguity, and perceived as costly and not commercially justifiable.

Commercial units want cheap labour, trained in a few cost effective techniques that lead to lower costs and higher profits based on archaeological methodology that would not have seemed out of place in the 1960’s.

This paper aims with the aid of a few case studies to show that this perspective is incorrect and in fact good and thoughtful application of scientific archaeology can not only establish what and where and what archaeology is on the site with minimal intervention, but in combination with geophysical analysis can establish the best and most cost effective way to investigate and evaluate it. This is not to say the numerous 30m or 50m x 2 m trenches across a site on a consultant whom doesn’t work but I will argue that a targeted environmental and scientific preliminary investigation will lead to a more cost effective and beneficial method of examining our historic environment to the benefit of all.

The presented data clearly show that the restructuring of archaeological heritage management in Austria since 2010 has led 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 issues such as the current state of human resources and general tasks of the Federal Monuments Office’s Archaeological Department are covered. Special emphasis is placed on the rise of commercial archaeology as well as on the "Guidelines for Archaeological Measures" introduced in 2010.

The present article deals with the structural changes that have taken place within Austria’s archaeological heritage management in the last few years. Issues such as the current state of human resources and general tasks of the Federal Monuments Office’s Archaeological Department are covered. Special emphasis is placed on the rise of commercial archaeology as well as on the "Guidelines for Archaeological Measures" introduced in 2010.

- Preventive archaeology in Austria
  - Presentation Preference - Oral
  - Author - Mag. Dr. Kröppen, Martin, Bundesdenkmalamt, Krems, Austria
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- Destination management of heritage sites and towns in Croatia
  - Presentation Preference - Oral
  - Author - MA Mihelic, Sanjin, Archaeological Museum in Zagreb, Zagreb, Croatia (Presenting author)
  - Co-author(s) - Komšo, Darko, Archaeological Museum of Istria, Pula, Croatia

- Bridging the gap: archaeology in tourism at the Archaeological park Emona (Ljubljana, Slovenia)
  - Presentation Preference - Oral
  - Author - Zupanek, Bernardo, Museum and Galleries of Ljubljana, Ljubljana, Slovenia (Presenting author)
  - Co-author(s) - Bregar, Tamara, Museum and Galleries of Ljubljana, Ljubljana, Slovenia

- Integrating the Management of Archaeological Heritage and Tourism
  - Presentation Preference - Regular session
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  - Keywords: management, multidisciplinary, tourism

- TH2-20 Abstract 02
- Bridging the gap: archaeology in tourism at the Archaeological park Emona (Ljubljana, Slovenia)
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- TH2-20 Abstract 01
- Destination management of heritage sites and towns in Croatia
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- TH2-20 Abstract 19
- Preventive archaeology in Austria
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- TH2-19 Abstract 19
- Preventive archaeology in Austria
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- TH2-20 Abstract 02
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- TH2-19 Abstract 19
- Preventive archaeology in Austria
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the heritage of Emona into the life of modern Ljubljana, and to enable this, the renovation of infrastructure in the park was carried out, together with interpretative aids and public programmes.

As tourists were one of the weakest groups of our visitors, we designed a marketing plan with them in mind, and started to collaborate with the local tourist board, Tourism Ljubljana, and designed a tourist programme together. We also included local entrepreneurs and artists in some other programmes and workshops. Owing to these changes and endeavours, we had a 25% growth in foreign visitors to the Park. However, we did experience tensions and misunderstanding due to differences in understanding, archaeological heritage as a source, in ways of exploiting it, and the scope and size of the possibilities. We think those conflicts and solutions employed make a good starting point for a debate, and a very useful experience for planning the development of Archaeological Park Emona and similar enterprises in the future.

After forty years, the discovery of the Roman barges has led to the realisation of a first-class limes visitor center, partly run by people with mental and physical disabilities. Limes Visitor’s Centre NGDRY PUULLY 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 - Hanacum, Emily, Durham University, Durham, United Kingdom (Presenting author)
Keywords: Authenticity, Heritage, Volunteer
Presentation Preference: Oral
The concept of archaeological tourism, or tourism based on the experiencing of an ‘authentic’ past through the viewing of archaeological sites (Timothy and Boyd 2006), is a distinctly Western phenomenon derived from nationalist capitalism which encourages heritage consumption (Rowan and Baron 2004). There are obvious challenges in the display of heritage specifically for monetary profit, a practice which often silences alternatives of the past (see e.g. Walt 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
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Keywords: Art, Co-creation, Cultural Tourism
Presentation Preference: Oral
Creating meaningful experiences for the general public should be the primary aim of cultural tourism. When securing quality in these meaningful experiences it is crucial to start cooperating with the specialists so that this side is also in cooperated in the project making.

Actually we choose to take the challenge one step further by creating a project that combines archaeology, art and tourism on equal terms.

The project is called eScape and can be seen as a concept that is all about combining art, archaeology, past and present. Creating and communicating art on sites with strong archaeological evidence in combination with the scientific archaeological excavations.

The location and the landscape is the raison d'être of the project - and locals as well as tourists are given the opportunity to experience landscape storytelling combined with world history interpreted by modern art.

eScape brings out art and cultural heritage "on location", away from the walls of the museum, creating a phenomenological space where nature, art and cultural heritage meet and communicate with one another, giving visitors unique and unexpected experiences.
A journey through time: sensory tourism in the context of archaeological museums in Poland

Author - Dr. Pawełta, Michał, Adam Mickiewicz University, Poznań, Poland (Presenting author)

Keywords: archaeological museums, Poland, sensor tourism

Presentation Preference - Oral

TH2-20 Abstract 07

Whereas previous studies in tourism promoted vision, current research claims a holistic approach to sight, hearing, smell, taste and touch in order to develop effective communication with visitors and create conditions to enhance tourist experiences. Consequently, sensory aspects of tourism have recently been in focus as an important dimension in the process of facilitating positive tourist experiences. Among others, also the archaeological museums embrace resources rich in multi-sensory stimuli that are more often utilized in the planning and marketing of appealing tourist experiences.

This paper aims to present the "sensory site" of archaeological museums in Poland. The key axis of considerations is checking to which degree they respond to the sensory tourism tendencies. The trends discussed are illustrated by selected examples. I am referring here to the long-established archaeological museums in Poland as well as newly-open exhibitions as "Following the traces of the European Identity of Cracow", as well as innovative trends such as those as realised in the "World of the Slavs and Vikings" or "The Slav Myth". It is not a systematic analysis, but shows certain noticeable trends in archaeology museums: in the presentation of the 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 raises some crucial questions, for example, how contemporary archaeological museums support the multisensory nature of tourist experiences? If the measures undertaken are to make the exhibited artefacts more attractive, or whether they are competing with it? Are the new ways of exhibiting and presenting knowledge about the past drawing society closer, encouraging aesthetic experiences with relics of the past, the discovery of ancestors and increasing scientific knowledge? Or do they turn attention away from the items on display? Finally, what is the real purpose of the "sensory" development of contemporary museums?

TH2-20 Abstract 08

Museums in Central Asia: The Role of Cultural Institutions in disseminating Information

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Keywords: digital divide, museum, tourism

Presentation Preference - Oral

The countries of Central Asia, Kazakhstan, Kyrgyzstan, Tajikistan, Turkmenistan, or Uzbekistan have great tourist potential both for foreign visitors and companies who might be interested in investing in tourism. A key factor making the place so attractive for tourists is its history, starting with the Silk Road, which dates back to Roman times (Buyers, 2003), continuing with renowned scientists and scholars of the Medieval world, through the dominance of the nomads, the Russian empire, the Soviet era. If we add the beauty of nature, landscapes, cultural, archaeological and heritage unique attractions, hospitality of people, arts and crafts of the region, it is easy to understand why this region can be considered as a unique and very attractive tourist destination. However, one common denominator in all the studies is that all these countries, to a different degree, lack proper infrastructure and have not developed proper mechanisms to attract more potential visitors and tourists.

One of the most often quoted sentences in the literature on the tourism industry is that information is the lifeblood of tourism. It has been clearly demonstrated in numerous studies that museums have direct impact on a country's economy. The aim of this paper is to 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 Cantión, Pisuerga, Duero and Tormes rivers were blown. Through "the worst scrape I was ever in" - as Wellington put it - the allied army gained a moral dominance over the French not renouncing to it ever again.

We identify, categorize and analyze the route and its highlights in order to create materials which may serve as a means to gain a deeper sense of the Spanish culture and heritage. These materials will be used to foster this touristic route which may be useful to students interested in learning Spanish L2 while experiencing the country's historical heritage.

The analysis of the museography and other landmarks of the route will demonstrate how fascinating the itinerary is as a means to relive the historic epic of the Napoleonic Europe both for the foreign contemporary traveler, often learned and with great interest in historical events, and also for the general public, willing to know more about this period of our history, the popular festivals, the historical recreations, etc.

As part of an ongoing project devoted to the planning, design and digitalization of materials called Touring the Battlefield. The Peninsular War in Castilla y León, our didactical proposal covers language use, cultural knowledge and intercultural competence, while contributing to the valorization and manament of our region cultural landscapes.

TH2-20 Abstract 09

One's destination is never a place, but a new way of seeing things: Touring a Heritage trail

Author - Leonor, Perez Ruiz, University of Valladolid, Valladolid, Spain (Presenting author)

Co-author(s) - Soto de Prado Otero, Catalina, Universidad de Valladolid, Valladolid, Spain

Co-author(s) - Ruiz del Arbol Moro, Maria, CSIC, Madrid, Spain

Co-author(s) - Borrego Bertrán, Cristina, University of Burgos, Burgos, Spain

Keywords: Cultural Landscape, Historical routes, Language learning

Presentation Preference - Oral

The aim of the paper is to present our investigation of the potential role of a historical route as a language learning and culture acquisition tool. The Route of the Blown Bridges refers to Wellington's retreat in 1812 from Burgos to Portugal after the month long siege of Burgos had proved to be too tough a target. While retreating, and to avoid being trapped by the French army, Wellington ordered that several bridges on the Cantión, 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.

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TH2-20 Abstract 10

Exploring the touristic image on World Heritage Archaeological Sites of Europe through the Web

Author - Babili, Bogdan, Móstoles, Spain (Presenting author)

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Co-author(s) - Martínez Fernández, Andrea, Complutense University of Madrid, Madrid, Spain

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Keywords: Perception and Interpretation, Tourism, World Heritage Site

Presentation Preference - Poster

Within the context of collaboration of the cultural heritage management research group of the Complutense University of Madrid and according to the interest awoken by the Archaeology and Tourism Working Party, we present this poster with the intention of making a first approach of how the touristic agencies operating on the Web treat the archaeological visit. Following the UNESCO criteria regarding the world’s regional division and the reasons for declaration, we selected the settlements recognized for their archaeological dimensions as World Heritage Sites in the European context and which are accessible to visit. Through a series of charts and quantitative analysis we are going to present which ones are the main references for the touristic industry when encouraging the visit and how much of that quantity is similar to the discourse transmitted by those who work in the research of these archaeological sites. The poster aims to show the differences or the confluences between the scientific discourses and those generated by the tourism sector so that proposals of improvement can be made for the social transfer of archaeology through these means and at the same time, improve the touristic experience related to the appreciation of the research efforts behind these places and that justify their conservation and opening to the public.
Managing the archaeological heritage

The research-presentation multidisciplinary approach - Symbiosis in Starigrad, Croatia

Author - Domiter, Ozren, Archaeological museum in Zagreb, Zagreb, Croatia (Presenting author)
Co-author(s) - Radman-Liveza, Ivan, Archaeological museum in Zagreb, Zagreb, Croatia

Keywords: interinstitutional-multidisciplinary cooperation, needs of local community and stakeholders, research-presentation concept

Presentation Preference - Poster

Bearing in mind the positive results of the cooperation between the Starigrad Tourist Board, the Starigrad primary school, the Institute of Archaeology and the Archaeological museum in Zagreb (e.g. publications of research results, a series of lectures for students, the creation of interpretative boards and a preliminary presentation plan, presentational activities, the active involvement of the local community), and considering plans for future spatial research and thereby connected presentation of zones round the site of the Sv. Trojica hill fort, the Museum succeeded in its intention to raise awareness of the local population and the governing bodies about the rich natural and cultural heritage of the area, and to actively include the community into the forming of its presentation through education activities. In the long run, the Museum wishes to include all potential stakeholders – cultural and natural heritage-related institutions (Paklenica Nature Park, Velebit Nature Park, Archaeological museum in Zadar), as equal partners, in order to act in synergy to enrich the existing tourist offer of the Starigrad Municipality, to achieve their own Missions, and, through a contemporary and innovative approach, to enable for the creation of a kind of museum in the open which would, inside its invisible walls, inseparably connect and communicate the rich natural and cultural heritage of the entire Starigrad area in an interesting and inspiring way.

The Museum, as the initiator of the idea of this sort of research-presentation multidisciplinary symbiosis, would use its research work not only as a key step in the collecting and interpretation of scientifically-based data, but also as an exceptional presentational potential, enabling all interested persons to see the site, witness archaeological excavations via the best interactive presentation method – personal experience.

Even when local community and stakeholders are not aware or, for any reason, able to communicate their needs, the Museum constantly strives to offer a broad frame of possibilities, ideas and cooperation models in which such needs of local community and local stakeholders are detected, recognized and outspoken and, after all, always treated with special attention and respect, and, whenever possible, fulfilled in a whole for the benefit of all included participants.

This synergetic, general-heritage and interinstitutional approach includes all three functions of heritage-related institutions (research, preservation and communication) for the overall benefit of the local community and society as a whole.

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TH2-21 Abstract 01
Sustainable Heritage and archaeology: a blessing or a curse?

Author - Dr. Andersson, Anna-Carin, University of Gothenburg, Gothenburg, Sweden (Presenting author)

Keywords: Archaeology, Heritage, sustainability

Presentation Preference - Oral

This aim of this short and reflective presentation is to encourage to even more reflectivity. 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 experiamental point of views on the matter of Sustainability. What is “Sustainable Archaeology”? Or even a Sustainable Heritage? Is it really a matter of Heritage? Who’s Heritage? Or is it a matter of how we can protect and ensure the survival of the discipline of archaeology for future generations?

In various societal circumstances it is possible to come across the concept of Sustainability: “sustainable education”, “sustainable child-care”, “sustainable society”, “sustainable development”, etc. Who are the stakeholders that have initiated the hankering or demands of Sustainable archaeology in the first place? What is the origins of this concept? In this paper it is argued that it is an awkward “phrase” which occupies valuable time, blurr, which prevents the heritage management sector from more important societal issues to discuss. For instance, how do we make Heritage and Archaeology a more interesting concern for people in contemporary societies?

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TH2-21 Abstract 02
The first step on the way to sustainability: understanding the structure of land development

Author - Vanmoerkerke, Jan, Ministry of culture, Chaînes-en-Champagne, France (Presenting author)

Keywords: Archaeology and Heritage on the Way to Sustainable, development, earthworks, sustainability

Presentation Preference - Oral
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 archaeology's capacity to endure at the time when it is facing as well old as new constraints together with requirements and pressure to 'perform' and to 'be socially useful', two aspects demand discussion and comparative studies: the actual participation and efficiency of archaeologists in 'cultural heritage management' and tainting (?) impact of archaeology on that, what is perceived as 'the Heritage' by the local and global communities. Unfortunately, we are not the perfect one in taking into account social preferences. At least in Eastern Europe.

However, starting from what I have available, and treating symptoms as informative, I assume that it is worth to focus archaeological attention on the material remains of the XX Century. Some of them already became or will soon become the subjects of the archaelogical 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 uncertainties and hesitations. It also induces growing public interest and can be described metaphorically as the 'black stains'. The 'white stains' are considered as the 'cleaning up'. That which is associated with the painful can be described as the 'black stains'.

In my presentation I will expose that dimension of the concept of sustainability of archaeology, on which as the crucial can be seen the potential of archaeology in exploring those 'stains' - within the recent past history. In other words I will try to present the merits - of archaeologists' ability to deal reflectively and responsibly with the material dimensions of 'stains' as with the worth of their associated with the black stains'.

I will deal with few examples of those situations, which can be described as the '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 Rawka 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", etc. events. In general, the first category can be seen as recognised and widely described historically, while the second is still shrouded in uncertainties and hesitations. It also induces growing public interest and can be described metaphorically as the 'black stains'. That which is associated with the painful can be described as the 'black stains'.

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TH2-21 Abstract 04
Contemporary archaeology - a response to the crisis and social approach towards heritage

Author - PhD Kajda, Kornelia, Univerzety i m. Adama Mickiewicza w Poznaniu, Poznań, Poland (Presenting author)

Keywords: contemporary archaeology, 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 archaeology is thought to be today. It is no longer just a discipline which deals with an ancient past and its material remains, nor is it a field of knowledge which is interested only in the ancient or prehistoric societies. Researchers became more aware that archaeology to 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, nothing 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 the terms used to the field which strongly refers to the living communities, their memories, experiences and needs, and which relate 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 archaeology as a field which, in Poland, aroused from the sociocultural expectations and is a way of responding to them. I also would like to describe strategies of experiencing the past and heritage that are undertaken in the contemporary societies which strictly relate to contemporary archaeology and research questions which this field ask (here the Polish perspective will be especially stressed). Therefore, topics of the meaning and value of heritage in the contemporary world, as well as, social needs towards our discipline within the context of contemporary archaeology will be raised here.

TH2-21 Abstract 05
Galicia and the Basque Country (Spain): Sustainable Archaeology in small sustainable countries?

Author - Professor Xurxo, Ayen, University of Basque Country, Vitoria-Gasteiz, Spain (Presenting author)

Co-author(s) - Sarca Rodriguez, Soina, University of Basque Country, Vitoria-Gasteiz, Spain

Keywords: Community Archaeology, Spanish Archaeology, Sustainable Archaeology

Presentation Preference - Oral

Spanish Commercial Archaeology lived its golden age between 1990 and 2007. This activity was closely linked with the current model of economic development in Spain, based on speculation and enormous, both private and public constructive activity. The strongest sector for the Evaluation and Correction of archaeological impact served to absorb the skilled labor force formed by the new generations of archaeologists from the universities.

The economic crisis of 2008 had dire consequences for the Spanish Archaeology. The State paralyzed research, universities were left without resources, scientists emigrated abroad and the archaeological market virtually disappeared by paralyzing the construction boom. Although this fact has hurt the archaeological profession, in these seven years have also emerged processes served as an opportunity for Sustainable Archaeology. Thus, the economic crisis led to a political crisis that has led to social movements claiming an active role as a tool for sustainable development. Politicians, residents, associations and patrons need archaeologists to start projects enhancement of Heritage.

To analyze this phenomenon in our communication we show how it is developing this renewed Community Archaeology in two similar contexts, yet very different. The Basque Country and Galicia are two historic nationalities that make up the Spanish State, two small Atlantic countries do not reach 3 million people, with a culture that differentiates them from the rest of Spain. At both sites the Archaeological Heritage has played a key role as a marker of identity and tourist resource.

Galicia is the country’s oldest population and most forested. The Basque Country, who lived since the Industrial Revolution in the late nineteenth century, is the richest region of Spain. The political weight of Basque nationalism has resulted in the strengthening of the public policies that encourage the development of local production. Basque politics supports research to enhance and internationalize its economy. As livestock, wine production, fishing and tourism, Cultural Heritage is a strategic sector. In turn, today, the development of public policy for reports on the political violence of the twentieth century has opened up a whole field of work for the Archaeology of Contemporary Past becomes a tool for sustainable development (and peace).

TH2-21 Abstract 06
Knowing and understanding the public: a step before planning sustainable heritage managements

Author - Ayan, Ruiz, Barcelona, Spain (Presenting author)

Co-author(s) - Pastor, Ana, Universitat de Barcelona, Barcelona, Spain

Keywords: heritage, methodology, public

Presentation Preference - Oral

In this presentation we discuss some methodological experiences carried out in Barcelona with the intention to study and better understand the interactions between archaeology, heritage and its public with the intention to provide a space of reflection about participatory research in the field of heritage and archaeology. Our main objective is to analyse and explore different methodologies that can allow us to draw up new participative and sustainable strategies for heritage management. Systematic
observation, surveys and participatory walks have been used as methods to enable us to expand into new contexts in which interactions between individuals and heritage could be examined. In this presentation we describe some of the methodological strategies used; preliminary results will be presented in order to reflect on the difficulties in encompassing the different agents – government, academia, ruins and people – that interact in the urban context.

TH2-21 Abstract 07
The past in the future: archaeology, heritage and sustainable development in Laconia, Greece
Author - Prof. Voutsaki, Sofia, University of Groningen, Groningen, Netherlands (Presenting author)
Co-author - Scheltema, Jairin, University of Groningen, Groningen, Netherlands
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.

The discussion of shifting attitudes to the past both in relation to hegemonic discourse as shaped by classical scholarship, national education and national ideology, but also in relation to folk culture (local legends and fairy tales) and recent influences such as film, comics, the souvenir industry and the internet.

The exploration of local perceptions of the past by means of a programme of archaeological (visual) ethnography. Special attention is given to educational programmes for school children presented in the local museums and archaeological sites, as these may contribute to the formation of local perceptions of archaeology and archaeologists.

A discussion of the main problems faced by the local communities, the endemic causes of exclusion and underdevelopment as well as the further deterioration during the current financial and political crisis.

The formulation of a vision for sustainable growth and for alternative forms of tourism (e.g. agrotourism, ecological tourism, 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.

To summarize, it will be argued that a sustainable future for the archaeological heritage is only possible if we understand the historical conditions of its formation, but also explore its potential to mobilize new forms of action and formulate new readings of the past.

TH2-21 Abstract 08
Here I live - interpretations of the past present and future
Author - PhD Synnashvedt, Anita, University of Gothenburg, Gothenburg, Sweden (Presenting author)
Keywords: heritage, interpretation, public archaeology, migration, sustainability
Presentation Preference - Oral
In the suburban area Bergsjön in Gothenburg you will find an ancient remain – a stone Age chamber grave from about 1800 B. C. This suburb is considered one of the most troublesome within the city of Gothenburg. It is dominated by different groups of immigrants and there have been a lot of incidents of shooting and criminal activities in the area. There are also a high number of youngsters from this area that have joined ISIS. There is therefore a great need of supportive and positive actions and perspectives considering sustainability in this area. According to The Swedish Heritage Conservation Act heritage belongs to everyone, and protecting and preserving the historic environment is a responsibility shared by every member of society. But, the question is if anyone living in the area of Bergsjön today is aware of this and if the pile of stones matter to anyone living close to the remains. An experimental interpretation project will take place during spring 2016 involving the children the area, the housing company and others. An aim of the Bergsjön project is to make a place for storytelling and pedagogical activities for the schools and the inhabitants in the area and to make archeology a part of the local society for a sustainable future.

TH2-21 Abstract 09
Integration of cultural and natural heritage, 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 domains. The binary separation of ‘natural’ and ‘cultural’ landscape results problematic in national and international legal and administrative frameworks involving planning and development. The improvement of knowledge for landscape management and protection of archaeological and natural heritage is a necessity. In this context, the Archaeological & Natural Heritage project (AHER) 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 - Esedo, Mikel, Sociedad de Ciencias Arqueológicas, 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 methods of education and training of the integrated archaeological and natural heritage (Anthe) funded by the European Commission (Erasmus + 2014-1-PL-KA202-003568) aims to improve skills relating to this wide vision of heritage for practitioners working in both the archaeological and natural heritage sectors. This objective means that the project aims to fill a gap not covered by traditional training systems.

The project is producing a range of innovative didactic materials which bring together an integrated vision of heritage. The binary separation of “natural” and “cultural” landscape results in problematic regional, national and international legal and administrative frameworks and complicates the practice of planning and development.

The project will explicitly address challenges and needs of a vocational education and training (VET) using different methods of distance learning. The didactic content is being produced by applying innovative practices in education and training and providing the opportunity for personalised learning approaches and collaborative work. All newly produced didactic materials will be stored in an online Content Repository. Flexible content authored supported by the web-based Content Repository software enables the storage and processing of distance learning content in a SCORM standard, to facilitate its further expansion and enhancement.

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 recognizing the significance of integrated heritage in spatial planning and regional development policies. These materials have been produced following the detailed analysis of the state-of-the-art of training in both heritage fields and the analysis of existing training courses. These analyses made it possible to define the didactical needs of these groups and to apply this in terms of the design of new training contents and methods. The didactic materials cover the most important issues of an integrated approach to conservation and management of archaeological and natural heritage and its impact upon planning policies and development. The e-learning modules will aim to improve the competence of professionals employed in both heritage sectors and in local administrations, who may not have been previously trained in the area that they have to make important decisions about.
Theoretical and methodological perspectives in archaeology

 Humanities research perspectives on contemporary society are currently “hot topics” on the European scientific agenda. This theme seeks to examine how archaeological knowledge is used and re-used in contemporary society; how archaeological heritage is valued; how additional values are created; how archaeologists can participate in creative cultural life, activity and business. The theme seeks to define how solutions for contemporary societal challenges are promoted and supported by the role of IT based networks of knowledge in society. In that context the theme seeks to define what current questions are important for understanding the social role of archaeology.

This theme invites scientists, researchers and practitioners interested in the current and potential use of archaeology as a tool for informing positive societal change. The theme seeks to extend beyond the archaeological sciences, examining a long list of topics. These include: the role of not-for-profit organizations and communities; issues of social engagement and exclusion; links to creative and cultural industries; social and cultural innovation; current definitions of social capital and broader economic impact; participatory culture and creative collaboration; medias and social networking; school education and interests of Y and Z generations; narratives, identities, participatory culture and creative collaboration; medias and social networking; innovation; current definitions of social capital and broader economic impact; exclusion; links to creative and cultural industries; social and cultural for-profit organizations and communities; issues of social engagement 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; 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 an inclusive and innovative society” and COST action “Individuals, Societies, Cultures and Health”.

Practical skills training in archaeology

As a result of the continuing financial cutbacks in education and in scientific research, universities often have insufficient resources to organize these activities in a sustainable way. Partnerships with archaeological companies have become a necessity to offer sufficient opportunities for students to learn a numerous technical, practical and administrative skills they need to operate in a highly professional environment. If this is the case, the university staff often has too little control over the quality of the work of both the student and the local supervisor. The good news is that the student can often choose a specific traineeship from a wide range of opportunities, both nationally 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.

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.

Implementation of best practice guidance across Europe would require from EAA members to share their experiences and to identify problems they have encountered, in order to develop practical guidance for the members. Implementation of these guidelines would require from universities and employers of trainees to implement these in their practical training programmes and to assess the impact of these actions.

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.
FROM THE COLOSSEUM TO PALMYRA. APPROPRIATION AND OWNERSHIP OF ARCHAEOLOGICAL HERITAGE IN A GLOBAL WORLD

Saturday, 3 September 2016, 09:00-13:00
Faculty of Philosophy, Room 209

Author - Guì, Mai, University of Heidelberg, Heidelberg, Germany (Presenting author)
Co-author(s) - Ravello Lami, Martina, University of Amsterdam, Amsterdam, Netherlands
Co-author(s) - Celli, Elisa, Museo Civico Etrusco Romano di Trevignano Romano, Trevignano Romano (Roma), Italy
Co-author(s) - Furtuuci, Alessandro, University of Rome La Sapienza, Rome, Italy
Co-author(s) - Pecci, Paolo, University of Southampton, Southampton, United Kingdom

Keywords: appropriation, conflict, identity

Presentation Preference - Regular session

Over the last decades, there has been substantial research into the relationship between archaeology and politics. Early research explored the interaction between archaeology and State focusing on nationalism, and demonstrating that there is no such thing as non-political, value-free archaeology. Nationalism stimulated the very creation of archaeology as a science and has informed the organization and infrastructure of archaeological knowledge. However, more recent trends focus on archaeology’s relation to Modernity, insisting on the concept that archaeology has to be viewed as cultural product. As every cultural product, archaeology as a discipline is inherently a practice of cultural appropriation. Archaeologists perceive themselves as officially entitled by the society to use archaeological material as resource for understanding the cultural past in pursuit of the “truth”. The vision of the past emerging from analyzing the dynamic nature of appropriation of the past as an intentional process – whose mechanism affects social change – is that uses of the past have to be considered as points to competing visions of the future at both individual and group levels. Scientific archaeology also adopts such a vision. The debate on the notion of appropriation and ownership, the role of archaeology in the creation of collective identities – and the impact of archaeological practice on local and global communities – are key issues that this session wants to address.

This session aims at:
- addressing typologies and levels of archaeological appropriation;
- understanding whether archaeology as discipline is able to overcome its predatory aspects to become more inclusive e.g. facilitating the appropriation of national archaeological heritage by minorities, immigrants, different religious groups, etc;
- exploring uses of archaeology in present-day conflicts (e.g. as peace keeping tool, stone of contention, etc.);
- comprehending the role of archaeology in European policy at both State and European Union levels (e.g. in identity building, ethnic conflicts, etc.).

TH3-02 Abstract 01
Cultural heritage between intrinsic values and communication strategies in the time of Daesh
Author - Dr. Iacomini, 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 events is neither indignation nor the search for consolation. He invited us to reflect through the lens of historical comparison: nowadays, as also historian G. Borrowes 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 massive violence towards the cultural heritage in such countries as Syria, Iraq, and, perhaps on a minor extent, Libya, 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 of propaganda, on the other, pointing to the emotional shock at the damaging (and trafficking) of "objects of culture" so dear to westerners 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 suffering 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.
Interpretative appropriation as religious utopia: Illyrian mythology after communism

Author: Bektishi, Arta, University of Tirana, Faculty of History and Philology, Tirana, Albania (Presenting author)

Keywords: Illyrian mythology, interpretative appropriation, material encounters

Presentation Preference: Oral

In trying to shift the discourse of Albanian spiritual identity away from a democratic revival of main religious traditions and possible political institutionalizations of culture, a fragment of the academic world hypothesizes for historical spiritual independence. A “iritual” that has to do with the personal, that which is interior or immanent: that which one’s experienced relationship with the sacred, and that wisdom or knowledge which derives from such experiences (Heelas, 2001).

In this paper I maintain that Albanian analysts are fashioning a post-communist academic discourse in favor of the construction of a unique vernacular transcendental tradition. To highlight the above-mentioned casuistry, I reconsider the present day focus on Illyrian mythologym as informative of distinctive heritage and ancient Greek syncretism.

To this aim, I contend that efforts for the creation of a discursive platform on vernacular traditions are paradoxical due to the fact that they make the case for a new utopia, similar to the Albanian experience of what Schumpeter asserted to be a Marxist religion. The latter made reference to the everyday life, while constructing evidence for historical pasts that recalled its ideology and values (Qendro, 2014). Moreover, a focus on the vernacular is purported as inclusive of Albanian “metaphysical” believers (Heelas, 2011) into global postmodern discourses on faith, while it provides a rationale for dissociative “apophtical respiritualization (Haynes, 2011).”

Alatri in the Sky with Diamonds

Author: Pintrucci, Alessandro, University of Rome “La Sapienza,” Roma, Italy (Presenting author)

Co-author(s): Gori, Maja, University of Heidelberg, Heidelberg, Germany

Keywords: Alatri, polygonal walls, pseudioarchaeology

Presentation Preference: Oral

In the last decades, thanks to stratigraphic excavations and associated pottery analysis, many Italian opus poligonale monuments have been correctly dated to the Republican era, deconstructing thus the idea of their belonging to the Archaic period or even earlier. Alatri, a well-known archeological site close to Rome, is a paradigmatic example of new scientific methods proving wrong old chronological and theoretical schemes. The polygonal walls of the city and its acropolis, indeed, date to the 3rd century BC proving wrong earlier. Alatri, a well-known archeological site close to Rome, is a paradigmatic example of new scientific methods proving wrong earlier chronologies and theories. This new chronological and cultural framework for the old city sparked a debate on its origin.

The past as a Consuming Object

Author: Masoudi, Arman, Tehran, Iran (Presenting author)

Co-author(s): Papoly, Yazdi, Leila, Neshanloob, Iran

Keywords: consuming society, archaeological record, middle eastern archaeology, vandalism-rationalism

Presentation Preference: Oral

Consuming society is a society with all agents and individuals being encouraged to sell, buy and consume things. In such a society, firstly, all the phenomena would change into a commodity while it also put the individuals in endless networks of things, icons. Gradually, consuming changed into a social performance in which the actors are all the human beings living in the society.

Being consumed, the objective past is being transformed into an everyday commodity and sell in below manners:

• Politically, the past is being applied in order to conform the society or propagate an especial type of identity.
• The past can be used also as a luxury presenting status distinction. Museums and galleries, the new context of ancient objects, let middle and well-off classes to own or observe the “glory” of the past.
• Artistically, lots of archaeological objects are being used to design new logos, fashion and souvenirs.

In this article, the authors investigate the different levels of consuming past in Middle East assessing the role of archaeologists in each level.
TH3-03 OPEN ACCESS AND OPEN DATA IN ARCHAEOLOGY: FOLLOWING THE ARIAEDNE THREAD

TH3-03 Abstract 01
Requirements for open sharing of archaeological research data

Author - Dr. Gaser, Guntram, Salzburg Research, Salzburg, Austria (Presenting author)
Keywords: e-infrastructures, open data, repositories
Presentation Preference - Oral

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 owners receive the credit they deserve.

Researchers still perceive more obstacles than incentives for opening up their data, including additional effort, lack of academic reward, concerns that data might be misused, and more. Indeed, clear evidence of benefits of data publication, re-use and citation – both on the community and individual levels – is crucial for putting forward the open data agenda.

The paper will give an overview of the current landscape of e-infrastructures and open access resources for archaeological and other cultural heritage research, and highlight institutional and other requirements for further progress and innovation through open data over the next 5 to 10 years.

TH3-03 Abstract 02
The Reputation effect

Author - Dr. Gattiglia, Gabriele, University of Pisa, Viareggio, Italy (Presenting author)
Co-author(s) - Anchieri, 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 research process and that 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.
Beyond the Pale: grey literature as a method of publication

**Abstract 04**

**Presentation Preference**: Oral

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The aims of the project ‘Digitizing Early Farming Cultures’ are to create standardized and integrated research data of Neolithic and Chalcolithic sites and finds of Greece and Anatolia (c. 7000–3000 BC according to Greek terminology), two neighboring and archaeologically closely related regions usually studied in isolation of each other. The data will be made available online ensuring compliance to standards in data production for data sharing (metadata and mapping) and interoperability with related initiatives.

The resources that form the basis for the new database include digital resources (site- and pottery- and bibliographic- databases in different formats) and also analogue resources such as unpublished manuscripts, artefacts and pottery collections. The resources result from different projects that span over the last four decades and where different terminologies, typologies and chronologies have been used. In the project we use various methods to integrate the data: creation of a new site database, mappings to CIDOC CRM and digitizing of finds (3D pottery models) and attribution with relevant metadata.

Data will be presented in the context of data sharing and interoperability with the STAR project. On this occasion, we want to provide an update of the practical implementation of information-sharing path, regarding the choice of data licenses, the privacy protection and intellectual property rights, and in respect of the CIDOC CRM mapping of STAR database. The STAR (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. STAR database is now made up of about 4,000 information source records, 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 specific unit distinguished on the basis of a chronological and functional criteria. Data are currently published online on STAR Project’s WebGIS portal (http://webais.archeoarsiparproject.it/webgis/login.php), where they can be freely consulted.

STAR Project, partner of the Ariaide project from 2013, is completing in the early months of 2016 the analysis of data licensing, starting from the analysis of the Italian regulatory framework and the comparison with the best practices developed by other project partners.

The study has been carried out in collaboration with the Central Institute for the Union Catalogue of Italian Libraries and Bibliographic Information (ICCU) and the University of Padua, and in particular it intends to analyze and evaluate the selection of the methods for achieving interoperability between databases, on Open Data release within Ariaide and the managing and licensing of original archive documents, i.e. grey literature, which have been digitized.

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**Abstract 06**

**Presentation Preference**: Oral

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The resources that form the basis for the new database include digital resources (site- and pottery- and bibliographic- databases in different formats) and also analogue resources such as unpublished manuscripts, artefacts and pottery collections. The resources result from different projects that span over the last four decades and where different terminologies, typologies and chronologies have been used. In the project we use various methods to integrate the data: creation of a new site database, mappings to CIDOC CRM and digitizing of finds (3D pottery models) and attribution with relevant metadata.

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Theoretical and methodological perspectives in archaeology

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 Per.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, merge those such as vocabularies. Complex records can be split into their individual components, represented, enriched and stored separately while maintaining their identity using semantic linking. Each integrated resource is assigned a URI and published to:

a) Virtuoso RDF Store in RDF which provides a SPARQL interface
b) to Elastic Search in JSON which provides a powerful indexing mechanism that can help present and associate resources accurately in real-time.

This approach can provide developers and creative industries with the means to create innovative applications and mine information form the RDF store.

End users ranging from simple visitors to domain researchers can access this data through the infrastructure’s portal which is capable of hiding the complexity of this plethora of data, filter the results using a plethora of filters and present connected resources in a way that can help guide the user instead of confusing him/her.

The technical infrastructure has been developed using various programming languages such as Java, PHP, Javascript. It is distributed spanning multiple virtual machines and brings together different established technologies and components. Both the technical infrastructure and the portal will be presented and demonstrated.

TH3-04 Abstract 01
Medieval archaeology in Europe. Narratives, topics, perspectives

Author: Dr. Citter, Carlo; University of Siena, Siena, Italy (Presenting author)
Co-author(s): Tavennier, Cinzia, Abdullah Gül University, Kayseri, Turkey
Keywords: Europe, medieval archaeology, Mediterranean, theoretical framework, methods, sources
Presentation Preference - Regular session

Studies on medieval archaeology in the Mediterranean regions must relate to chronologies, sources, and material culture which are completely different from those used for Scandinavia, for instance. Northern European regions, in fact, have a close link with the Iron Age, while Late Antiquity is crucial for a comprehensive study of the medieval Mediterranean.

As much as Late Antiquity is strictly connected to the development of Medieval Europe, so are the Byzantine and Islamic worlds. Late Antiquity, Christian, Byzantine and most of Islamic archaeology are thus parallel worlds marked by indisputable and essential connections, albeit researchers often still work within their disciplinary clusters.

This session wishes to invite scholars to move past their disciplinary clusters and contribute to a significant development of a shared knowledge among the archaeologists who focus their efforts to study the archaeology of Europe and the Mediterranean regions AD 400 to 1550. The existence of several different chronological frontiers for archaeologies, whose purpose is to produce knowledge on the same period, for example, tend to encourage the making of clusters. Researchers would surely benefit from a broader contextualization of the information related to a same period.

The very same date of the end of the Middle Age is debatable when coming to consider medieval archaeology in connection with the Byzantine and the Islamic worlds.

Thus, the session wishes to open a thoroughly debate on the chronologies, the historical questions, the methods, and the lines of sources the archaeologists use in their daily work over a period of 1000 years in Europe and the Mediterranean. In particular, the session will focus on the theoretical framework of each approach, the tools and sources, rather than single case studies, unless they are the bases of a historical model.
TH3-04 Abstract 02
Islamic archaeology: theoretical and methodological issues
Author: Asst. prof. Tavaniari, Cristina, Abdullatf Guv University, Kayseri, Turkey (Presenting author)
Keywords: Islamic archaeology, theory, methods
Presentation Preference: Oral

This contribution wishes to present an appraisal of the discipline of Islamic archaeology and to analyse and discuss its development and the current trends in the discipline.

The origins of Islamic archaeology span a little more than a century and its strong initial relationship with the history of art and monumental architecture shaped its early development; only in the 1980s Islamic archaeology could gain its independence from these fields of study and start facing new challenges such as carving its place within the field of Islamic studies and looking for common approaches with other fields of archaeology. In the last thirty years Islamic archaeology has thus witnessed a great development both in discoveries and interpretation, where it came to apply a long overdue approach to the study of the material culture and the methods of monastic archaeology to the castles of the Middle East. Like other historical archaeologies, Islamic archaeology has 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 (Izvoi, 1993) and since that moment publications taking a stake of the discipline and its theoretical frameworks have grown (see for example Walmsey, 2004 and 2013; Milwight, 2010; Tonghini 2014).

The presentations aims at identifying the influences different branches of archaeology had on Islamic archaeology and at comparing the research approach of Islamic archaeology with archaeologies from other regions and periods. One of the objectives of the contribution is also to discuss the contemporary and urgent challenges of the discipline. In fact, I believe that Islamic archaeology is essential to help build dialogues between Islamic countries and other countries, particularly Europe, and needs to be recognized as a fundamental element to achieve a comprehensive knowledge of the development of the Mediterranean zone. Finally, present weaknesses of the discipline and future directions will also be debated; particularly, I will examine the role of digital technologies in the field of Islamic archaeology.

TH3-04 Abstract 03
Ottoman Mediterranean and its archaeology between two worlds
Author: Dr. Dikkaya, Fahri, TED University, Amman, Turkey (Presenting author)
Keywords: Ottoman Archaeology, Symbiosis, the Mediterranean
Presentation Preference: Oral

The Ottoman legacy has left a significant imprint on the social and cultural relations in the Mediterranean. The chronological frontiers of Ottoman legacy show a shared knowledge in the Levant, especially in the Levant. But, this legacy and its chronological contexts protect a local and differentiated knowledge, also Ottoman symbiosis and cohabitation created a symbiosis between its central and peripheral clusters. The archaeological data and its distribution in the Ottoman Mediterranean indicate Ottoman policy and its colonization effects on the social and economic structures. This paper aims to discuss Ottoman knowledge and its archaeological clusters to identify Ottoman Mediterranean and its some problematic and debatable validity in the current modern and nationalist archaeologies.

TH3-04 Abstract 04
Monastic Mediterranean and its archaeology through Lefebvre Spaces at Darband
Author: Dr. Shingiray, Irina, University of Oxford, Oxford, United Kingdom (Presenting author)
Keywords: Byzantine and Islamic archaeologies, Medieval Europe, Theoretical Framework
Presentation Preference: Oral

This paper seeks to contribute to the debates regarding chronological and spatial incoherences which exist between the realms of the Islamic, Byzantine, and Mediterranean archaeologies, and will propose a theoretical framework which helps to reconcile and integrate those fields through archaeological common ground. The basis for this archaeological model is the site of Darband in the Eastern Caucasus – the fortress that marked the frontier between the world of the Christian culture of the Late Antiquity/ Byzantine Empire, the Islamic Caliphate, and Medieval North represented by the indigenous people of the Caucasus and the Steppe Nomads. Besides being a fortress and the wall built to separate the above-mentioned worlds for defense purposes, this site is laden with deep religious meaning and it lives on as a sacred place where people gather and display their imperial and local identities, inscribe their religious testimonies, and perform ritual and commemorative actions executed in direct and encoded forms. All these cultural activities leave archaeological traces. In order to contextualize this common ground and meeting place, I propose to look at this site through Lefebvre Spaces, namely at the multiple spaces of representation extant at the times of

Darband: “The Production of Space” by Henry Lefebvre (1991) outlines three main categories of space: perceived (physical) space, conceived (mythical, conceptualized, enclosed) space, and lived space (the space of political negotiation between all categories, including archaeological “spaces of representation”). In my paper, I will argue that this theoretical framework can be useful in order to reconcile different archaeologies at the common ground where physical space and knowledge are shared as a part of everyday life.

TH3-04 Abstract 05
Monastic Archaeology: sources and methodology in the Mediterranean landscapes
Author: Prof. Staletta, Francesca Romana, University of Rome Sapienza, Roma, Italy (Presenting author)
Keywords: Mediterranean landscape, Monasticism, Sources
Presentation Preference: Oral

The spread of monasticism is one of the most important phenomena in the medieval Mediterranean area. Here it was born and it was experienced from the architectural, topographical and administrative point of view. From the beginning of the Seventh century monasteries start to spread their influence in affecting the landscape expressing themselves as architectural complexes and actors in the agricultural exploitation of natural resources. Whole areas were reshaped according to a process that is possible to rebuild thanks to the integration of different sources. In Italy, the huge number of sources kept in the monastic archives and the static nature of the rural landscape, are the starting point for the methodological development of a monastic topography based on the integration of different written records, cartography, iconology compared with the archaeological data giving as return a multi-layered historical perspective with distinguished and integrated levels.

TH3-04 Abstract 06
Early Middle Ages as social conflict: local communities in post-Roman Iberia and the Mediterranean
Author: Dr. Tajarizc, Carlos, Gipypac, Vitoria-Gasteiz, Spain (Presenting author)
Keywords: Archaeological theory, Post-imperial period, Social conflict
Presentation Preference: Oral

In the last two decades the debates over Early Middle Ages in Western Europe have been revitalized due to two interrelated processes. On the one hand, the incorporation to the scientific research of a huge amount of new data coming from Commercial Archaeology and the resulting damage to heritage within a capitalist management in pre-crisis times. On the other hand, it has been revitalized because of the introduction of concepts such as “identity,” “religious community” or “ethnicity” within archaeological and historical interpretation of the period. The renewal of identity and ethnic interpretations, almost lost after World War II, have introduced new important and interesting debates, but also recovered others, even though the discipline, in general terms, is still dominated by a kind of naïve empiricism which pays little attention to the social and political implications of archaeological data. However, as philosophers like Slavoj Zizek claims, this “ethnic revival” is not casual but closely related to the crisis of the late capitalism and used as a shield against postmodernism traumas. Early Middle Age archaeology, as a scientific field (following Bourdieu’s characterization) has not been isolated from this process and in some cases, has not only misinterpreted the archaeological record, but also has been the basis for racist policies in Western Europe. One of the consequences of this is the blurring of Early Middle Ages as a period of high social conflict among different social strata, beyond ethnic parameters. In this paper, we will try, in the first place, to make a deconstruction of some current discussions over Early Middle Ages and, in the second place, to make a social and anthropological interpretation of Early Middle Ages in terms of social conflict and of economic and symbolic adaptation of local communities, overall peasant societies, to the failure of a Roman project of World Empire. For that purpose, some concepts from Marxist and Critical Historiography (In the line of L. Lucassen) will be used to interpret some key elements of post-imperial archaeology, using the central part of the Iberian Peninsula as a case study within the Mediterranean context. This territory has been recently analysed in a PhD research and is inserted in a Research Project on social inequalities in Early Middle Ages. Thus, domestic architecture, settlement patterns or funerary remains will be analysed within this theoretical frame, trying to contextualise but also to extrapolate conclusions and ideas for other case studies.

TH3-04 Abstract 07
Beyond hierarchy: Common property rights & migration as a factor in rapid change in material culture
Author: Prof. Oosthuizen, Susan, University of Cambridge, Cambridge, United Kingdom (Presenting author)
Keywords: common property rights, governance, migration
Presentation Preference: Oral

The theoretical underpinning for this paper is the assertion that the structures of power in any society influence access to resources. Political domination leads to access to resources, including land, being tightly controlled, and the possibility of migration limited. This results in population stability, and little opportunity for change. When political domination is reduced, access to resources is increased, and new opportunities for migration emerge. An example of this is the Khmer empire in Southeast Asia 800-1431, described by Samet (2009). This paper will re-examine the development of the Khmer empire from 1020 AD, using the tools of Marxist theory and the role of common property rights to understand the development of social, economic and political structures. It is argued that class inequality (both social and economic) was established at this time, and that social stability was maintained through the rule of the Khmer elites. It is also shown that the Khmer state became over-centralised, and was unable to provide the level of protection and stability which the Khmer population required.

The paper will also discuss the role of common property rights in the Khmer empire, and how these were used to control access to resources. It will be shown that the Khmer state was able to control access to resources, and that this resulted in the establishment of class inequality. It will also be shown that the Khmer state was unable to control access to resources, and that this resulted in social instability. The paper will also discuss the role of migration in the Khmer empire, and how this was used to control access to resources. It will be shown that the Khmer state was able to control access to resources, and that this resulted in the establishment of class inequality. It will also be shown that the Khmer state was unable to control access to resources, and that this resulted in social instability.
Sudden and almost complete changes in material culture are, in archaeological contexts, frequently ascribed to migration. An inauspicious example is the almost complete replacement of Romano-British artifacts by those from north-west Europe in many parts of England in the first few decades of the early fifth century AD.

The paper begins by offering a brief critique of current models for explaining such rapid changes 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 argument does not discount the possibility of cultural change as a result of variations in access to resources, wealth and status whether or not as a result of migration. Nor does it challenge the existence of political and social hierarchies. It argues, instead, that the complementary contribution of collective traditions should not be neglected in explaining transformative cultural change. The paper concludes by suggesting the need for more complex, more dynamic, perhaps even epidemiological, models to explain change in the human past.

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TH3-05 Abstract 01

**FEMINISM AND MATERIALITY IN ARCHAEOLOGY**

**Faculty of History, Room 211**

**Author:** Bjurungdlov, Tove, Gothenburg University, Gothenburg, Sweden (Presenting author)

**Co-author(s):** Fredengren, Christina, University of Stockholm, Stockholm, Sweden

**Co-author(s):** Tomaskova, Sylvia, University of North Carolina, Chapel Hill, United States of America

**Keywords:** feminism, materiality, relational

**Presentation Preference:** Regular session

The focus is on various relational and flexible perspectives on archaeology and materiality, a wide subject encompassing fieldwork, museum and heritage archaeology, as well as academic archaeology in research and professional settings. The presentations should also take up material contexts and innovative approaches based in critical theories of intersectionality, queer and black feminism, maroon archaeology and postcolonial locations. These are perspectives generally critical of the simple uses of phenomenology and undiluted symbolism. We suggest that archaeology may have the potential to integrate symbols into our analyses, as materialities - things, structures, practices and bodies – always include symbolic aspects. Another issue worth exploring is the position of humans and living/dead materialities; are we generally in a hegemonic position to animals or dead materialities? Or has this already been challenged with the impetus of posthumanist approaches? The subject we want to explore is multifaceted. In accordance with the proposed theoretical perspectives, issues with a potential to be explored within archaeology are: the material body as a site for knowledge production; the politics of material locations and sites; geographical as well as temporal and social. We would be delighted to invite colleagues with diverse backgrounds and locations who are curious about widening practices of feminist, relational approaches to archaeology and materiality.

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TH3-04 Abstract 08

**Does Chronology Matter?**

**The Early Medieval Venice Narrates through Water, Wood and Labor**

**Author:** Caldon, Diego, Stanford University, Stanford, United States of America (Presenting author)

**Keywords:** Anthropological Theory, Ecological Degradation, Historicism

**Presentation Preference:** Oral

How much do the historical events rewritten through archaeology speak for themselves as memories, and how much do the archaeologists construct them into cohesive narratives? This paper aims to consider the demanding activities of sequencing events and building effective chronologies in order to transform archaeological records in meaningful historical events.

Using early medieval Venice and its origins as a test case, I would investigate the political and cultural role of pre-manufactured chronologies built around few problematic late antique and early medieval written sources in the interpretation and narration of the archaeological records. I will also attempt a comparison between the different approaches to the materiality of the Venetian past including both Italian academics, conditioned by a strong historical tradition since Croce’s works, and the international scholars’ community.

The paper, integrating ecological degradation and anthropological theory of materiality, aims to reassess the process formation of new settlements in the Venetian lagoons at the end of the Roman period. From Late Antiquity to the Early Middle ages, specific ethnic and social groups developed a new perspective of the geography of Europe and of the Mediterranean region. The unique relationship with the lagoon environment is bringing new perspectives to the interpretation of archaeological datasets. The human-ecological relationships that underpinned the rise of Venice emphasize the social aspect of the materiality of the past, and simultaneously it seems to have a significant legacy in the present.
TH3-05 Abstract 03
Where is the Feminism in Archaeology?

Author - Tonge, Joanne, 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 feminism as an archaeological practice 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 uncaring universe, or feminism without historical binaries

Author - Professor Robb, John, University of Cambridge, Cambridge, United Kingdom (Presenting author)
Keywords: evolution, gender, politics

Presentation Preference - Oral

This paper pursues the paradoxes which result from the collision of three facts: (a) Archaeological and historical accounts of the past are often taken as foundational narratives and laden with political meaning; following on from this, archaeologists have a responsibility to make sure that our work is used in productive rather than destructive political ways. (b) We also have a responsibility to say true things about the past. (c) People in the past were often deeply “political incorrect”, with attitudes and practices different from today’s and sometimes no doubt entirely appalling by modern standards. The prehistory of gender relations is one such example. Archaeologists have responded to this paradox in varying ways, none satisfactory. One is by not engaging with the question of whether the past acts as a political mirror for the present. A second is by adopting a “see no evil” approach where we contemplate only positive aspects of the past. A third is to fit the past within the three traditional narratives (historical lack of change means natural inevitability, progress towards utopia, and progress towards dystopia). All of these rely upon an underlying, often unspoken rigid and distorting historical binary distinction between “us” and “them”, the modern and the pre-modern. As a counter-example, I explore a revisionist history of gender in which not only the “content” of gender but its existence and definitional form is seen to evolve continuously throughout human history. A feminist approach in this case is not about championing the interests of one sector, but about exploring the possibility for difference of all kinds, including historical. The result is a narrative which both accepts the past on its own terms and which us learn what history really implies about our present and our future.

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

Presentation Preference - Oral

In 1958, Lisbon hosted the first National Archaeological Congress. Being itself a novelty in the Portuguese architectural panorama, this Congress has integrated other innovations, likewise a growing number of women in archaeology. 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

Presentation Preference - Oral

The paper discusses by which methods and means a certain sex is attributed to the bodies of prehistoric individuals or depictions and the effects of an (early) assumption. Bog bodies, skeletal remains and cremated bones have been determined as physically male or female by physicians, archaeologists and physical anthropologists. Statuettes have been named “Venus” (often) or “Adonis” (rarely) by archaeologists and historians and even rather abstract depictions of prehistoric humans have been interpreted as biological men and women. These attributions have an immediate effect on the further description and interpretation of the archaeological record. I will discuss how and why archaeologists (among others) tend to see a (biological) man or a woman in every representation of a human being and even in their physical remains. Besides that the paper examines the long history of naming prehistoric individuals or depictions after antique goddesses or heroes. It deals with the physical and psychological characteristics that are attributed by this naming and the resulting effects on our image of prehistoric humans.

TH3-05 Abstract 07
The end of archaeology as we know it

Author - Dr. Vogel, Helga, Free University Berlin, Berlin, Germany (Presenting author)
Keywords: Ancient Near Eastern Studies, Archaeology of the gap, Function of theory

Presentation Preference - Oral

One of my favourite thinking things are the findings unearthed by Leonard and Kathleen Wootley and their workmen in the Royal Cemetery at Ur in what is today South Iraq. The archaeological record of the cemetery (around 2500 BC) is well known beyond the narrow limits of ancient Near Eastern studies part because of the exceptional grave goods, which still provide one important fundament of our knowledge of ‘Sumerian culture’, partly because of the mass burials the excavators came across in some special graves. To my knowledge there is probably no theoretical approach, popular in archaeology the last 20 years or so, that was not used to explain ‘these mass burials, often hardly noticing the actual archaeological record. Now, my on 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 660 graves). The result is this: scarcely anything fits together and everything seems contradictory. The situation may be summed up in one statement (actually a Detroit based music collective’s motto): UR, this is Underground Resistance, unexploitable. What is the function of theory in such a situation? More than gloss over lack of knowledge? Does it make any sense, for example, to interpret the positions of dead bodies in a 4500 year old ancient grave with Foucault’s concept of ‘docile bodies’? Is it really satisfying to reduce human behaviour to performances of power/ submission? If we want an archaeology that actually respect ancient people, their lives and attitudes, should we not accept the resistance of the dead of Ur against our access/ exploitation? Whom do we serve by producing fantastic ancient worlds (supported by sophisticated postmodernist frameworks) standing on feet of clay (literally in the case of ancient Near eastern studies)? I strongly advocate decentralizing perspectives in archaeology. This is an ‘archaeology of the gap’ of blank spaces’ occupied by women and all other ‘subgroups’ usually not represented in the records of ancient Near Eastern archaeology (at least this is the usual attitude that one might also question). But how to theorize the proposed approach and who will fund archaeological projects that only produce open ends and tons of questions?

Helga Vogel, Free University Berlin Email: vogelha@zedat.fu-berlin.de.
TH3-05 Abstract 08
Contributions of social anthropology to the knowledge of the status of adorned bodies in archaeology

Author: Dr. Beliard, Chloé, University of Southampton, La Roche sur Yon, France (Presenting author)
Keywords: adorned body, gender, archaeology, social anthropology

Presentation Preference: Oral

This paper proposal intends to present the first elements of a research project taking an interest in the visual effect of adornments, the social status of the body and gender ideology. The main issue is to determine to what extent the social and symbolic status of the body can be understood in death archaeology by means of ethnographic record. Firstly, through different ethnographic data, it is possible to observe how adornments are used to emphasise the different parts of the body according to their aptitudes and their symbolic meanings.

Secondly, the social categorisation and gender ideology related to adornments can be specified in view of social anthropology and in taking into account of the notion of intersubjectivity. Three questions are fundamental: who are the wearers of adornments, why do they wear them and for whom? Furthermore, which aspects of adornments are used by several human groups as a medium to create social categorisation and which other aspects can be 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 body and symbolic use of buried adornments.

TH3-05 Abstract 09
Was there always a man and a woman?

On flexibility of sexuality in historical Islamic Iran

Author: Prof. Paspil Yazdi, Leiia, Nayehabur, Iran (Presenting author)
Co-author: Dezhamkhooy, Maryam, University of Heidelberg, Heidelberg, Germany
Keywords: flexibility, Safavid Iran, Teimurid Iran, sexuality, bisexuality, homosexuality

Presentation Preference: Oral

Being propagated repetitively, the general image of contemporary Middle Eastern Muslim women is comprised of feminine bodies rapacious and lustful (as called Chador (veils), the ones who cry more than speak, feel more than deduct and are always fighting) to be controlled by a very patriarchal society. Such an image has been seriously produced based on a very recent dichotomy between genders, women and men. Violent dominant men/dominated women.

How much these images can be generalized to the past? During the last decade, the propagated image of Islamic sexuality has been very much challenged by historians. Referring the miniatures, sculptures and wall paintings, the performability of gender during medieval ages can be very differently described from the recent propagated one.

Chronologically, by the entrance of Islam to historical Iran, the change of the solid Zoroastrian dichotomical concept of men vs. women begun while afterwards the invasion of the region by central Asian Turks made bisexuality normative. Very famous pieces of literature such as Ghabbonesnameh [from 10-17 centuries A.D] introduce the real love, the love between two men or two women. Noteworthy, it seems that modern governments are responsible to change the bisexuality as normal sex orientation to homosexuality in order to control the bodies and also to revisit the pre-Islamic value.

Analyzing pre-modern Islamic Shia/ia, it is obviously detectable that there were always ways to put these vast ranges of sexual activities out of punishment frameworks. Archaeologically speaking, such a distinctive gender performability has been materialized in the remained material culture related to the body such as wall paintings, pottery moffs and miniatures. In the first glance, the flexibility of sexuality would be observed within the manner applying by the painters who have visualized the bodies, there are very few distinctions between the bodies of men and women freely acting, practicing sex and everyday life while there were several words addressing several types of sexuality in the literature.

In this article, the authors try to investigate material culture dated to Teimurid and Safavid era [15-17 centuries A.D] through them they will be able to establish the very different historical framework of gender performability and the flexibility of sexuality in Teimurid and Safavid Iran. The author try to project “sexual flexibility” as a cultural “situation”. It seems that flexibility goes beyond the contradictory homosexuality/heterosexuality.

TH3-05 Abstract 10
How moral travel produces difference – telling Nuu-chah-nulth whalebone clubs

Author: Dr. Marshall, Yvonne, University of Southampton, Southampton, United Kingdom (Presenting author)
Keywords: becoming, difference, moral geography

Presentation Preference: Oral

Wilson Duff (1975: 12) opens his book images stone b.c.: “Images seem to speak to the eye, but they are really addressed to the mind. They are ways of thinking, in the guise of ways of seeing.” Duff went on to suggest that the choice of stone as a medium for seeing-thinking was a move designed to place thinking outside of time – and thereby into a world of being (cf Marshall 2000 World Archaeology). In a recent article in the Canadian Journal of Archaeology (2011), Natasha Lyons and I argued in a similar vein for an understanding of objects as spatial ‘tellings’ materialised in non-linear, non-narrative and therefore a-temporal forms. Our common programme with Duff is that objects/images are arguments concerning possibilities for being and becoming, not representations of beings. Using whalebone clubs as my forum, I show in this paper how the Nuu-chah-nulth people of Vancouver Island, British Columbia, create object “tellings” (ways of thinking) which set out a moral or ontological geography. Moral travel through this geography constitutes a process of becoming which produces difference (cf Nasar 2012 Feminist Theory). Simple moral travel produces everyday growth and change. But when more fundamental transformation is sought, through engagement with great power or wealth, moral travel is demanding and dangerous. The transformative possibilities of moral travel are calibrated in effort and risk.

TH3-05 Abstract 11
Material feminisms and the question of anthropomorphism in northwestern Argentina

Author: 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. If, as Grosz suggests, differences are enacted equally through or across ‘natural’ and ‘cultural’ processes, the ceramics can be understood as materialities/bodies that share processes in common with other bodies (flesh, stone, etc.) regardless of the stuff out of which they are made. Anthropomorphism then becomes less a question of resemblance and more one of marking and enacting difference.

TH3-05 Abstract 12
Foreign women – from merchandise to merchant.

The change in interpretations

Author: Dr. Koch, Julia Katharina, Lektüre für Archäologie, Preetz, Germany (Presenting author)
Keywords: gender archaeology, identity, 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 “Hohlegräber”- Bronze Age or in Late Iron Age burials near the oppidum Manching buried with foreign artefacts are combined with images of passive female roles. Influenced by a changed image of social female roles in Europe the interpretations permit actually similar Early Iron Age women an active role in trade networks around the Alps. But independent of interpretations the archaeological data are always the same – female burial with a mixture of local and non-local jewellery. So, how can we know how active or passive such women could have been as social actors in prehistoric times? 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.
For the purpose of sociological interpretation, bolder authors refer to classical historical records, as well as later testimonies, in order to find missing links so as to rediscover sociological context and interpret the body of record in periods of acute cultural changes in a different light.

In this paper, some new archaeological data from Gaul enable the distinction of criteria to re-examine older records, and develop by way of contextual, spatial, functional, stylistic, regional and chronological comparison, as I have already devised in previous work, approaches or indices to identify the presence/absence of women in the body of records.

This could allow further interpretative writing on causes for culture change, but separated from pure data analysis. Copyright 14 February 2016

Qeering Skeletal Sex Assessment at Worthy Park, Hampshire, England

Co-author(s): - Williams, Joceyln, Trent University, Stoughton, Canada (Presenting author)

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 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 EUROPEAN PREHISTORY

Friday, 2 September 2016, 14:00-16:00
Faculty of Philosophy, Room 107
Author - Bonney, Emily, California State University Fullerton, Long Beach, United States of America (Presenting author)
Co-author(s) - Johnson, James, Vienna Institute of Archaeological Science, Vienna, Austria
Keywords: community, prehistory
Presentation Preference - Regular session

Archaeological imaginings of ‘community’ are central to both our theoretical foundations as well as our methodologies. Whether explicit or implicit, community acts as a meshwork for how people, materials, discourses, and ideas are brought together to form meaningful enterprises, in addition to how archaeologists investigate communities. Recent additions to the increasingly rich body of literature on community focus on the relational ontologies of community, addressing the fluid and dynamic nature of human-based communities to be more inclusive of plants, and animals, geological formations. In Tim Ingold’s (2011) terms, we must undo the inversion that seeks to turn communities into immutable and immobile points and dots. Instead, we should focus on meshworks that highlight the life, growth, and movement. Such meshworks are immersed in the ebbs and ﬂows of life. Building upon Ingold’s idea of meshworks, we include in this the eventual breakdown or disintegration of community as an interesting and important topic of exploration.

Despite the important and theoretically vibrant research being done on community, the epistemologies involved in the identiﬁcation of community remain relatively uninterrogated and/or avoided. This may be because considerations of ontology and epistemology in archaeological research of community are treated as separate ‘knappable’ conditions and are thus studied individually. We suggest that community ontology and epistemology are inseparable and should be treated as such. To better understand how communities were made in the past, and how best to identify them, we further suggest that archaeologists explore the life history of community, rather than just their emergence or other speciﬁc temporal and spatial points of interest. We invite scholars of European prehistory (broadly considered) to explore these meshworks and to critically interrogate their epistemologies for identifying communities in prehistory.

TH3-06 Abstract 03
A Minoan Meshwork: Gathering the Natural World into Community

Author - Prof. Miller Bonney, Emily, California State University Fullerton, Long Beach, United States of America (Presenting author)
Keywords: community, Crete, landscape
Presentation Preference - Oral

The making and breaking of community on Crete has been considered within the framework of the search for the emergence of a state understood generally in political and economic terms. Thus the refined luxury of Late Bronze Age Cretan palatial culture (1625-1500 BCE) with its intricate architecture, sumptuous paintings and exquisite works in a broad array of media has commanded scholarly attention. Competitive display by elites accounts in many narratives for the elaboration of the palaces, and Aegeanists have 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 Hochhuth (2007), Goodison (1998) and Chaplin (2001, 2004) have pointed to another element in palatial culture that suggests different ways of envisioning community, the intentional inclusion of the natural world in the organization and appointment of the palaces - orientation toward natural elements, the presence of rough baetyl, and similar features point in this direction. This paper argues that these attributes are more than just referential. Instead they reveal the way in which the life history of community on Crete always was enmeshed in the landscape most broadly, and that parallel to the shifting economic and political structures seemingly centered on significant architecture there was a broader community woven into the environment. Thus when communities dispersed at the end of the Neolithic around 3100 BCE many populations affectively took with them the caves they had occupied and used for burial relocating these as built circular stone tombs or tholoi and eventually reasect as house tombs providing the new center for social interaction. Animal vases in the tombs further attest to this linkage with nature. The gradual accretion of villages and towns in the territory around the tombs yielded at the transition into the Middle Bronze Age ca. 1590 BCE to a recentering of populations around central court complexes accompanied by the re-assertion of the centrality of the natural world in the peak sanctuaries which arguably served as the center of a larger community that paralleled those admitted to the first so-called palaces, and associated with the increasingly urbanized tombs. Rather than fixed at particular sites community on Bronze Age Crete was fluid and defined by the presence of natural features - by vistas, rocks and caves - as visible as well as the manifestation of aunts 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 04
Communities of death: Microarchaeological analysis of community reproduction in Bronze Age Hungary

Author - Polanyi, Tamas, Northwestern University, Evanston, United States of America (Presenting author)
Keywords: community reproduction, micro-politics of death, social discourse
Presentation Preference - Oral

Sociopolitical transformations of Central European Bronze Age were marked by the appearance of fortified settlements, long-distance trade in bronze and secondary animal products, warfare and radical changes in death rituals. In this paper I study the ways in which local communities negotiated and facilitated such broad historical changes. Challenging reproduction of communities, contradictions arose between local investments in subsistence, operational for the construction of communal identities, and distant relationships of trade and people. Emerging networks of exchange and prestige competition introduced new knowledge, wealth, and distinctive lifestyles, which created tensions within communities. Furthermore, the introduction of new materialities provided means for innovative social and political configurations by opening up alternative sources of power for the construction of personal distinctions.

In this study I will present archaeological evidence for political discourse to narrate processes that led to the slow transformation and subsequent disruption of close-knit corporate communities in central Hungary by the end of Middle Bronze Age. Although often neglected in the analysis of social change, I argue that funerary practices offer an important insight into the life histories of communities. Here, I will demonstrate the active construction and negotiation of communities through a comparative and contextual analysis of multiple communal cemeteries. I propose a multiscalar and historical processual approach to death rituals articulating the micro-politics of funeral and the broader historical circumstances that shaped the lives of communities.
TH3-06 Abstract 05

Entanglements of pottery acquisition strategies in the Mycenaean palace at Pylos

Author - Zeman, Piotr, Adam Mickiewicz University in Poznan; Institute of Prehistory, Poznan, Poland (Presenting author)
Keywords: Entanglements, Mycenae 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 (Voutsaiki and Killian 2001, Pullen 2010). The idea of the “palace”, which was supposed to be dominant in Mycenaean social and economic landscape, still constitutes the foundations of our thinking about the processes taking place in the Late Bronze Age Aegean. But in the meantime, many scholars have pointed out a clear duality in Mycenaean economy. It consisted of the “palatial” section, visible thanks to the archives of Linear B tablets, as well as “non-palatial” section, noticeable only by the archaeological remains and sporadically appearing in the archives (Shelmerdine and Palaima 1986, Bennet 2001, Knappel 2001, Whitehall 2001, Gailly 2007, Nakazaki 2015).

Within the broad subject of Mycenaean economy I would like to scope only on the one particular subject of pottery acquisition strategies in the palace of Pylos, narrowing the analysis only to the last period of its existence. The duality of Mycenaean economic system mentioned above, can be clearly seen and presented within that subject. The period LH II B, dated roughly to the 13th century BC (Shelmerdine 2008: 4), is the climax of Mycenaean palatial civilisation, containing most of available archeological remains. The palace at Pylos, after 300 years of development was by that time a complex, bureaucratic, administrative and industrialised 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, Voutsaiki and Killian 2001, Gailly 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 a, once 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 whole web of dependencies, between things and humans involved in Pylian pottery industry, will help to better understand its complexity and position in the Mycenaean community of Messenia.

TH3-06 Abstract 06

Creating Locality: Place and Community along a Fen River

Author - Dr. Kohring, Sheila, University of Cambridge, Cambridge, United Kingdom (Presenting author)
Co-author(s) - Boutidien, Kate, University of Cambridge, Cambridge, United Kingdom
Keywords: community, landscape, locality
Presentation Preference - Oral

How do you define ‘being a local’? Often this is an intangible concept wrapped up in a sense of community identity including an intimate knowledge of your social network and immediate environment. Embedded in this is a shared understanding of the time and 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 rearranges and changes the way it collectively understands the world. In essence, some landscape structures become and are maintained as nodes in local knowledge networks while others fall out of networks which signify being local. This paper presents a specific example of how community builds, shifts and rebuilds in relation its immediate place along the changing River Otanta (Cambridgeshire, UK) and to wider reaching social phenomena over time. Both the wider ontological structures and the immediate physicality of the world interplay in this example to highlight the constantly changing sense of local knowledge, place and community.

TH3-07 Abstract 01

The Place and Importance of the Working Parties & Committees in the EAA

Author - PhD Yalman, Emine Nurcan, Cultural Awareness Foundation Istanbul, CIE-Center for International Heritage Ac, Istanbul, Turkey (Presenting author)
Co-author(s) - van den Dries, Monique, Leiden University, Leiden, Netherlands
Keywords: EAA, Strategies, Working Groups
Presentation Preference - Oral

The recent conflicts witnessed by the world have created a range of new dilemmas for the management of cultural heritage sites, museums, cultural artifacts and so on. Working Parties are one of the core elements of the EAA to produce knowledge, strategies and propose decisions about specific issues. There are positive and negative changes happening in the world and this fast rhythm of dynamism necessitates updating in the fields of archaeological practices, interpretations, documentations and protection measures. The Working Parties and Commitees have crucial role in contributing to that updating process.

This form of organization enables members to express themselves, to share thoughts, and to create proposals. The outcomes of discussions within these groups are unequivocally important for the future of European archaeology. This presentation aims to remember the initial objectives of Working Parties and Committees within the EAA, what the current situation is and to discuss how to generate a network and connection between related Working Groups and how to appeal to the wider members to join these active smaller units.

TH3-07 Abstract 02

Experiences from the Farming, Forestry and Rural Land Management Working Group

Author - Dr. Holoan, 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 activities.
than in almost any other sphere - but if we truly wish to influence the conservation of rural archaeology and the wider heritage then we must also engage with the policy makers and those who influence them. Frequently this also means working alongside groups 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, Agriculture or Forestry matters. In 2010 the WO was also involved in writing a statement called "Europe's living landscapes: cultural heritage as a force for rural development" in partnership with a number of European organisations, including Europa Nostra and the European Landowners Organisation. Arguably, we have been effective in building external relationships. But it is also clear that there remains a fundamental need for closer co-working within EAA (specifically across working groups), but also with representative organisations for archaeology and archaeologists at national or Member State level. If this was also to be supported and endorsed by the EAA board there would greater opportunities still for increasing the traction of our work with external policymakers.

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TH3-07 Abstract 03

The working group „Archaeology and Gender in Europe (AGE)“: views on the past and to the future

Author - Dr. Gutsmiedl-Schümann, Doris, Freie Universität Berlin, Hamburg, Germany (Presenting author)

Presentation Preference - Oral

In 2009, the working group “Archaeology and Gender in Europe (AGE)” was started. It has as its area of concern the discussion of Gender issues in European archaeology, where gender is considered both as a structural element to be studied in the past and as influencing research in the present. It addresses the study and the understanding of gender arrangements in the past and the study and understanding of how current gender systems affect archaeology as an academic and professional practice.

Today AGE is a very active working group with 58 members from Europe and beyond (U.S., 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 organise session within their topics, but beside 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.

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TH3-07 Abstract 04

From Incident to Structure. Possibilities for a network of professional Associations within EAA

Author - MA MSC Mark, Spanjer, SAXION, Amsterdam, Netherlands (Presenting author)

Keywords: Advocacy, Political Strategy, professional archaeological associations

Presentation Preference - Oral

Archaeologists have power, real power. The power to inspire; the power to bind people; the power to influence; the power to address and make change. We are perceived as interesting. We, ourselves and our work have a pull on the general audience and fellow human beings. Our potential “selling power” makes the average politician and activist drool. In the past 50 years we have incidentally used our influence to protect Cultural Heritage to great effect. EAA can look back on a series of successes where it was able to effect developments to protect Archaeology in Europe. But even with this in mind, generally speaking we as individual archaeologists or even as a group feel that we are politically speaking of little relevance; or even powerless. As long as archaeology is not on the agenda of the non-permanent Working Parties and Committees of the European Union we will remain a side issue. But even with this in mind, we are now seeing archaeology gain more attention. The aim of any WP should be to avoid overlap in sessions and create synergies between sessions with related topics; to put a certain topic the agenda of the EAA; create a dialogue amongst the EAA members and with representatives from other relevant disciplines outside the Association if we don’t want our comments to remain unconsidered in an “archaeological vacuum”.

A WP could form a link to the outside world, a mouthpiece on certain topics that are important for archaeology but relevant to other disciplines as well. A WP could make connections and control the topic within the expanding organization of the EAA. It is clear that with the growing number of sessions and papers the scientific and local organizing committee don’t have a clear oversight. It would be interesting if the WPs could form two-way bridges where information on specific topics can be brought outside our EAA bubble, and other ideas and thoughts can also reach us, always with the archaeological interest at heart. Our WP explicitly invites participation and input from all stakeholders that are involved in archaeological tourism and strongly supports a multi-disciplinary approach. In an ideal world the archaeologist plays a central when an archaeological site is developed for touristic activities. This is however not always the case and in order to achieve change we will invite other stakeholders that aren’t EAA members to join our WP and participate in our meetings and sessions and the EAA members of this WP will take part in other conferences and more prominently become part of the decision making process that concerns archaeological tourism.

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TH3-07 Abstract 05

Working Party (WP): Integrating the Management of Archaeological Heritage and Tourism

Author - Williams, Anemarie, Aartmoort, Netherlands (Presenting author)

Keywords: Politics, Professionalisation, Working Groups

Presentation Preference - Oral

The aim of any WP should be to avoid overlap in sessions and create synergies between sessions with related topics; to put a certain topic the agenda of the EAA; create a dialogue amongst the EAA members and with representatives from other relevant disciplines outside the Association if we don’t want our comments to remain unconsidered in an “archaeological vacuum”. A WP could form a link to the outside world, a mouthpiece on certain topics that are important for archaeology but relevant to other disciplines as well. A WP could make connections and control the topic within the expanding organization of the EAA. It is clear that with the growing number of sessions and papers the scientific and local organizing committee don’t have a clear oversight. It would be interesting if the WPs could form two-way bridges where information on specific topics can be brought outside our EAA bubble, and other ideas and thoughts can also reach us, always with the archaeological interest at heart.

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TH3-07 Abstract 06

Public archaeology is a martial art

Author - Dr. Richardson, Lorna-Jane, University of Umeå, Umeå, Sweden (Presenting author)

Keywords: Politics, Professionalisation, Working Groups

Presentation Preference - Oral

Public archaeology in the UK deals with politics, power and inequalities, and aims to explore the impact of archaeology in present day social and political landscapes. Can this work in practice during a period of unprecedented cuts to government budgets covering heritage issues? This paper will explore how our work affects political decisions and whether archaeology be used as an instrument of policy and politics. Can political activism be part of our professional work, and is this ethical?

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TH3-07 Abstract 07

EAA and Politics: role and potential of the non-permanent Working Parties and Committees

Author - Dr. Hugolin, Sophie, Newcastle University, Basel, Switzerland (Presenting author)

Keywords: Politics, Professionalisation, Working Groups

Presentation Preference - Oral

Apart from the scientific exchange EAA’s Annual Conference always has been also an important opportunity to discuss and engage in political topics. For groups who want to meet regularly and work on long term issues the EEA offers the possibility to form a Working Party or Committee. Currently the EAA has more than ten active Working Groups (http://ea-a.org/working_groups.html), who meet in Round Tables during the Annual Meeting and give a short report on their activities at the Annual Members Business Meeting. Some of them even report on their Round Tables in TEA.

Working Groups are very different regarding their topics, but also in the way they work. With the EAA having increased considerably in members and becoming more professional the Working Groups should have. Here some of the most active members are to be found, but at the same time the potential of these unofficial bodies is far from fully exploited. We should discuss on very practical terms how Working Parties could contribute more to the expertise needed in the EAA Board and how they could meet effectively at the Annual Meeting, but moreover also work continuously during the rest of the year.

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The material record naturally lends itself to long-term perspectives. In few areas this is as apparent as the study of technology, which has historically been closely intertwined with the disciplines of archaeology and anthropology. But has our focus on the long-term caused us to unwittingly shape a linear, technologically deterministic picture of the past? And is there something to be learnt from the parts of the story which have been pruned from this evolutionist model?

The papers presented in this session will explore examples of how our pattern-seeking approaches have excluded interesting aspects of the story of the relationship between humanity and technology, and the methods by which we can reintegrate these. We argue in favour of complexity (but not as a rule), of the little details which can enrich or subvert archaeological grand narratives, while acknowledging that the latter are also an integral part of our discipline.

This session is intended to stimulate discussion of our current approaches to the archaeology of technology, and to consider ways in which they can be developed in order to inform broader theoretical and methodological developments.

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**TH3-08 Abstract 03**

**Documenting the microscale of pottery technology in large samples**

**Author:** PhD candidate Pappasouropou, Anna, Aristotle University Thessaloniki, Thessaloniki, Greece (Presenting author)

**Co-author(s):** Kotsakis, Kostas, Aristotle University Thessaloniki, Thessaloniki, Greece

**Co-author(s):** Urem-Kotsou, Dushka, Demokritos University of Thrace, Komotini, Greece

**Co-author(s):** Chandrorniggi-Matski, Aneli, Ephorate of Antiquities of Kozani, Kozani, 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 Varemni Goulenn and Roditis Palsambali, 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 assemblages of each settlement and to compare the techniques used by the potters of the two sites. The technological traits will be compared to the common typologies of pottery based on vessel form and ware.

The study so far has shown the variability within and between the settlements in the macroscale 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. Wobser, 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 Bretton 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 illicitly 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 undeniably 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 reinforce its deposition in a hoard since it could no longer be worn in the usual manner around the neck or displayed on the chest of a deceased matriarch in the grave. The technology of jewelry breakage – as well as the corollary of physical and emotional loss – has not been included as a part of the story of bracteates as scholars continue to focus on the dichotomy of graves and hoards. The little details incorporating the technology of manufacture and the agency of individuals confound the former simplicity of a grand narrative as we elaborate on our understanding of the past.

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The theoretical and methodological perspectives in archaeology

360 - 361

The theoretical and methodological perspectives in archaeology discussed.

730 - 737 - Ag=27%, Cu=66%, Sn=5% (medium values). It is a Celtic procedure generalized in 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" (J.M.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 that provided, which was neglected. Our presentation will analyze exactly these neglected aspects. We will approach Balbus' text at three interrelated levels. Firstly, we will try synthesis all the mathematical knowledge that Balbus possessed at the time. Then, strictly based on these, we will try to reconstruct the methods and, implicitly, the instruments that might have allowed the performance of the three military survey applications that Balbus mentioned in the text. The reconstruction of the methods and instruments will be integrated in the historical context of the original text, by evoking a contemporary personality, that of Heron of Alexandria, which brought numerous contributions to the technical field, including that of topographic measurements, with his paper Dioptra. Finally, we will try to discover more about the persons behind the analyzed text (Balbus and 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:
Expositio et ratio omnium formarum

TH3-08 Abstract 05

Untold Stories About Ancient Survey: Balbus and his "Expositio et Ratio Omnium Formarum"

Author: - Moinitz, Alexandru, Institute of Archaeology, Bucharest, Romania (Presenting author)

Keywords: Balbus and Celsus, groma and dotoxa, military survey applications

Presentation Preference - Oral

The paper starts from the premises that, most often, the ancient written sources were given less attention from the perspective of technical information they might provide. The details concerning the dating, geographic location and the correlation with already known historic events was considered essential and, unfortunately, most often insufficient. In addition, specialists capable to read in the original language the ancient sources might not have always been familiarized with the principles of ancient technology. Due to these causes, many of the stories concerning the beginnings of technology remained untold. We might have proof that a certain principle or method were applied, but we do not know HOW. Our presentation proposes a re-reading/re-analysis of the work Expositio et ratio omnium formarum, dating most probably from the first decade of the 2nd century AD, and preserved in fragmentary copies from the 6th and 9th centuries. Taking the shape of a letter written by a certain Balbus and addressed to a certain Celsus, the work contains numerous data of topographic nature, including the mentioning of certain military survey applications. These latter ones present a particular interest. For example, the determination of the widths of a river that had to be crossed or the height of a fortification that had to be conquered “without venturing within bowshot of the enemy” (J.M.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 that provided, which was neglected. Our presentation will analyze exactly these neglected aspects. We will approach Balbus’ text at three interrelated levels. Firstly, we will try synthesis all the mathematical knowledge that Balbus possessed at the time. Then, strictly based on these, we will try to reconstruct the methods and, implicitly, the instruments that might have allowed the performance of the three military survey applications that Balbus mentioned in the text. The reconstruction of the methods and instruments will be integrated in the historical context of the original text, by evoking a contemporary personality, that of Heron of Alexandria, which brought numerous contributions to the technical field, including that of topographic measurements, with his paper Dioptra. Finally, we will try to discover more about the persons behind the analyzed text (Balbus and 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:
Expositio et ratio omnium formarum

TH3-08 Abstract 06

Tin presence in Geto-Dacian silver coins as revealed by XRF and micro-PXIE – a possible explanation

Author: Dr. Constantinescu, Bogdan, National Institute for Nuclear Physics and Engineering, Magurele-Bucharest, Romania (Presenting author)

Keywords: geto-dacian coins, silver, tin

Presentation Preference - Oral

Geto-Dacian silver coinage - “Celtic” type starting with Philip II tetradrachms imitations - is active from end of 5th to beginning of 1st Centuries B.C. A spectacular aspect is the presence of tin in these coins starting with 1st Century B.C. It is logic to suppose that tin was deliberately and gradually introduced. The average fineness and the average weight of the issues corroborate the supposition. There is a reduction of the fineness with the time that is specific to almost every Geto- Dacian coin issue. Tin concentration in coin increased with the time - at the beginning of 1st Century B.C. it was more or less proportionally to copper concentration. This could suggest that bronze was used instead of copper in alloying silver. A very high correlation is not expected because the ratio Sn/Cu in ancient bronzes is far from being a constant. The preference for adding tin in Ag/Cu alloys is due to the instruments that might have allowed the performance of the three military survey applications that Balbus mentioned in the text. The reconstruction of the methods and instruments will be integrated in the historical context of the original text, by evoking a contemporary personality, that of Heron of Alexandria, which brought numerous contributions to the technical field, including that of topographic measurements, with his paper Dioptra. Finally, we will try to discover more about the persons behind the analyzed text (Balbus and 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:
Expositio et ratio omnium formarum

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, Rustick, United Kingdom (Presenting author)

Keywords: Chemical analysis, copper-alloys, Object life histories

Presentation Preference - Oral

The chemical analysis of prehistoric metal is one of the longest ongoing scientific experiments in the world. Beginning with the pioneers of organised chemistry and archaeology, around 100,000 artefacts from the European Bronze Age have now been investigated. These composition sets are typically interpreted through the lens of grand narratives: the provenance hypothesis, a broad sequence of alloys, statistically lumping analyses into groups, or simplistic routes of exchange. These schemes are increasingly at odds with current archaeological concerns such as the fine-scale performance of identity, value, and the agency of individual people and objects.

The grand narratives are beginning to be exchanged from a chemical perspective as well. Recent research at the University of Oxford has emphasised the subtle variations in chemical composition caused by a unit of metal’s unique story. Quants of metal can pass through a number of forms, merge with others, be reworked, used, and decorated over time. Many of these processes will 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.

Keywords:
Expositio et ratio omnium formarum

TH3-08 Abstract 08

A more efficient means for going backward?

Animal husbandry as technology

Author: - Dr. Fothergill, Tyr, University of Leicester, Leicester, United Kingdom (Presenting author)

Keywords: Animal husbandry, Technology, Theory

Presentation Preference - Oral

Theoretical examinations of relationships between human and non-human animals in the past are few and far between. There is a clear scholarly focus on concepts such as “exploitation” or “species” of species (animals), and a generally unilinear approach to domestication. Past animal husbandry is broadly viewed as a component of agriculture, and conceptualised as temporally progressive, ever approaching a 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, only certain lines of archaeological evidence (sex ratios, mortality profiles, metrics) are employed to draw conclusions about activities and practices undertaken by a range of practitioners across a large and varied social landscape. Is it more likely that cattle became smaller after the Romans left Britain because the Britons lacked the knowledge and skills to husband them in the most productive way, or that indigenous cattle breeders simply lacked the resources and connections to a network which had been available to them during the Roman occupation? Could there be other factors at work? Such questions cannot be addressed in a comprehensive and nuanced manner by comparing a few strands of quantitative data, and a more flexible theoretical approach is warranted. Technology has been part of the toolkit of archaeological thought for centuries, and does not merely equate to tool use. Manufacturing practices which leave a clear archaeological signature are recognised as technologies. Animal husbandry is no different in that it is a continuous process, a work of creation and amendment over time, which is subject to alterations in knowledge, skills, and practice. Approaching the idea of animal husbandry as a technology would allow for: the incorporation of multiple strands of evidence at different scales; a recognition of an array of activities as part of practical processes; inclusion of some “infrastructural” factors such as gender, status, and identity; animals to be considered as potentially agentic; and the tantalising prospect of examining the dissemination of animal husbandry knowledge through systems of human networks.

Keywords:
Expositio et ratio omnium formarum
TH3-08 Abstract 09
Digging democracy

Author: -
Co-author(s): -
Keywords: -
Presentation Preference - Oral

Archaeology has been used as part of the history about the national state. Still today this story is being retold, many times uncritically. At the same time we as archaeologist must admit that we also often retail the big linear story. A mound is given higher priority than smaller more insignificant graves, a settlement area with longhouses more than a site with cooking pits but no postholes. By systematically choosing not to excavate peripheral sites, small sites, and temporarily used sites we create a history of central places and big men. This is an undemocratic way of conducting archaeology.

We propose a democratic archaeology, regarding methods, sites and people. In our scientific research programme we decided that larger, central sites and centrally located, archaelogical sites so that they can be a part of our history. This includes, for example, carefully choosing the excavation methodology, and to supplement the collection of finds with scientific analysis in order to actively search for the stories of the people that didn't have the power to erect stones or mounds.

Before the excavation of the site Tarum 1821 a strategy for sampling the site and structures, especially cooking pits, was formulated. A sampling of the surface was performed in relation to the structures. From excavated structures the section was sampled by a continuous grid and consisted of ten to twenty samples from each structure. These samples were used for geochemical analyses, mainly phosphate, magnetic susceptibility, loss of ignition and lipid acids. These samples were supplemented by samples for macrofossil and radiocarbon dating. The ratio between large and small fire-cracked stones were calculated.

By combining these analytical methods we can conclude that cooking pits are complex structures. The cooking pits on the site could be subdivided into three categories, of which one were used for processing grain. By combining these results with a landscape analysis, including other settlement sites, place names and natural preconditions, we could interpret the site as an activity area used for the processing of grain.

The site can be interpreted as a peripheral site (now and then) but important for the society. Peripheral sites are also sites beyond control. In such a place can, for example, subversive thoughts and discussions be performed. This is sites were monuments and mounds won't be erected, but instead represents other parts of the society.

We want to tell other stories. To be able to do that we need to excavate more peripheral sites and use more diverse methods. More people of the past must be given a chance to be heard. Diversity and variety is an important part of a democratic archaeology.

If all voices shall be heard we must also acknowledge them, in prehistory as well as today.

TH3-09 Abstract 01
Assessing food sharing and social cohesion in the Neolithic of the Levant

Author: -
Co-author(s): -
Keywords: -
Presentation Preference - Oral

The formation and perpetuation of social cohesion was often related to food sharing. Food is not consumed without being socially and symbolically transformed and charged with multiple layers of meaning. Individual daily meals contrast and interact with collective commensal activities, like feasting, which are believed to be essential for maintaining the cohesion of societies. However, other interpretations tend to interpret large-scale shared meals rather as activities linked to acquisition of social power or status competition. The present paper will explore the connection between food sharing and social cohesion in the

TH3-09 Abstract 02
Assessing food sharing and social cohesion

Author: -
Co-author(s): -
Keywords: -
Presentation Preference - Oral

Assessing food sharing and social cohesion

The theoretical and methodological perspectives in archaeology

TH3-08 Abstract 10
Technological variability of pottery in long-term perspective: a case of the Neolithic settlement

Author: -
Co-author(s): -
Keywords: -
Presentation Preference - Poster

This poster comprises results of a technological analysis of pottery from the large Neolithic settlement site in Bylan, located in the Kulha Hora district in the Czech Republic. This project is focused on a complex methodology with the aim of identifying the degree of variability of the technological chains and of interpreting the relationship between the technology and social environment of the settlement. The technological variability is being examined in relation to the chronological diversity and the spatial patterns of the site. Macroscopic analysis establishes a grid of categories into which the observed phenomena are sorted. By using this approach there will always be some specific groups of pottery. In many cases, however, we do not know the real nature of these groups. Are these different groups of pottery that reflect the distinctive technological traditions of specific chronological phases or are there only continual variability together with one or two broad concepts regarding paste recipes? These are basic dichotomies that we can not resolve without having the possibility to reliably quantify the differences. The question is, what are our possibilities in regard to mapping the technological variability on a quantitative basis. The human senses represent very powerful analysers and their “feelings” can capture complexly based or subtle differences between the sensual qualities of observed objects. For validating these “feelings” we need accurate quantitative data. Standard thin-section petrography can only partially solve this problem. Sem-quantifications are either time-consuming or subject to the observer’s experience.

A possible solution to this problem lies in a new advance in scanning electron microscopy that enables automatic modal mineralogical analysis that constitutes an accurate estimation of the distribution and the volume percentage of a mineral within a thin section.

TH3-08 Abstract 08
Linking archaeological record and social cohesion

Author: -
Co-author(s): -
Keywords: -
Presentation Preference - Poster

The theory of “social cohesion” is one of the core concepts in macro-sociology and social psychology, and its definitions are multiple. In its core meaning cohesion is related to the formation of groups and social bonds, resulting in groups sticking together. The modern idea of social cohesion implies solidarity as well as inclusion and social integration. Social cohesion would thus imply a set of social processes that lead to developing a sense of belonging in a community. In archaeology, this concept has been predominantly related to commensality and the action of feasting; the latter is often seen as a major social strategy in creating cohesion. Other utilizations of the term of “social cohesion” in archaeology include its use as a contrary to social differentiation, or to intra- and inter-group conflicts. The session invites contributions which try to define “social cohesion” based on specific archaeological finds that could reflect possible mechanisms of community formation from the Neolithic to the End of the Bronze Age, as well as limitations in using this concept in archaeology. The analysis should be related specifically to the social strategies involved in the formation of social cohesion and not just to group identities. Study fields could include: formation of social cohesion through collective living, working, eating, fighting, building, burying etc.

TH3-09 Abstract 03
Building big incentives for cooperative action of hunter-gatherers at early Neolithic Göbekli Tepe

Author: -
Co-author(s): -
Keywords: -
Presentation Preference - Poster

During the 10th and 9th millennia BC, at Göbekli Tepe in southeastern Anatolia monumental circular enclosures made up of up to 5.5m high pillars decorated richly, mainly with animal motifs, were erected by hunter-gatherer communities. One of the important questions regarding this site concerns the way in which small-scale groups joined their forces for constructing a place that clearly is strongly connected to their worldview. The distribution of elements of Göbekli’s iconography evidences a catchment area of about 200km around the site as the homeland of these groups. 20 years of excavation have revealed some clues. A close look at the massive amount of filling in Göbekli’s enclosures reveals that we are not dealing with sterile sediments. The material used to intentionally backfill the buildings at the end of their use-lifes consists of limestone rubble from the quarries nearby, flint artefacts and immense amounts of animal bones smashed to get to the marrow, clearly the remains of meals. With traces of settlement absent, for Göbekli-Tepä this readily leads to the idea of large, ritualized feasts as a mode to gather workforces and ensure cooperation. The present contribution will explore the likeliness and possible consequences of this scenario.
Late Neolithic settlement of Shir, Syria. The settlement was extensively excavated by the German Archaeological Institute and represents one of the few explored sites of this period in the Northern Levant. It has a rich stratigraphic sequence which covers nearly a thousand years. So-called individual single room houses coexist with ‘special’ multiple room buildings, singular grinding equipment with whole sets for ‘collective’ food processing, and isolated vessels with large storage rooms or buildings. The chronological sequence of the architecture and the contexts and evolution of grinding stones suggest a transition from individual to communal consumption and a possible coexistence of social behaviors related to food consumption. Furthermore, the very early production and use of pottery accentuates these processes.

TH3-09 Abstract 03
Review of social structure in the Late Neolithic through the ritual activities and related materials

Author: Dr. Erdem, Deniz, Middle East Technical University, Ankara, Turkey (Presenting author)
Keywords: Late Neolithic, Ritual, Social structure
Presentation Preference: Oral

The Late Neolithic Period is named as Halaf Period in North Mesopotamia (6000-5200 BC) and it falls between the Neolithic Transition (c.10500-7000 BC), and the Urban Transition (c.4000-2500 BC). Therefore, the time period is traditionally perceived as an important stage in the evolution of central authority and ritual and economic centralization that was the hallmark of the first city-states. The architectural structure and regional settlement patterns usually indicate a non-hierarchical organization that appears to be centered upon extended-households related through kin relations. Yet, it has been difficult to understand how these extended-household groups regulated their social relationships with other groups.

Within an alternative theoretical approach, this study reviews the space-object-person relations of the time period through analysis of the material culture, 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: - Lymperakis, Maria, Democritus University of Thrace, Eleftheroupoli Kavala, Greece (Presenting author)
Co-author(s): - Kotsos, S., Democritus University of Thrace, Komotini, Greece
Co-author(s): - Kotsos, S., Hellenic Ministry of Culture, Education and Religious Affairs, Ephorate of Ant, Thessaloniki, Greece
Co-author(s): - Chondrogianni, A., Hellenic Ministry of Culture, Education and Religious Affairs, Ephorate of Ant, Kozani, Greece
Keywords: Food preparation, commensality, Late Neolithic, pottery and spatial analysis
Presentation Preference: Oral

This paper focuses on the evidence for collective and domestic solidarity present in Late Neolithic settlements in Macedonia, Greece as revealed by the analysis of cooking pots and cooking facilities from two settlements, Stranoupoli (Thessaloniki) and Tzouma 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 case of cooking pots in Stranoupoli provide evidence for domestic provisioning and consumption of food while in Tzouma Kremasti Kosalada 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 Tripolye populations: evidence versus hypotheses

Author: Dr. Dzialenko, Aleksandr, Institute of Archaeology of the NAS of Ukraine, Kyiv, Ukraine (Presenting author)
Keywords: settlement hierarchies, social cohesion, settlement structure, household
Presentation Preference: Oral

This paper examines the evidence and hypotheses regarding social cohesion among Tripolye populations, discussing social interactions at the following spatial tiers: house and household, settlement, micro-region and supra-region. In this respect emphasis is placed upon Tripolye site hierarchies and settlement structures.

TH3-09 Abstract 06
The importance of collective aspects in megalithic building in Neolithic Europe and recent Indonesia

Author: - Wunderlich, Maria, Christian-Albrechts University Kiel, Kiel, Germany (Presenting author)
Keywords: Funnel-Beaker, Megalith building, Social Cohesion
Presentation Preference: Oral

One challenge of research connected to megalithic monuments is the inclusion of the concept of social cohesion into the social interpretation of given examples of the 4th and 3rd Millennium B.C. throughout different parts of Europe. Funnel-Beaker societies in Northern-Central Europe are providing a rich base of megalithic tombs, with a number of several thousand monuments built in the modern areas of Germany, the Netherlands, Denmark and Sweden. Megalith building traditions can be found in a number of archaeological, historic and recent societies scattered over Europe, South America, Asia and Africa. One of the last remaining places with a recent tradition of megalth construction is the island of Sumba in Indonesia. This ethnographic case study shows how collective efforts in building practices are shaped by and in turn shape the social structure of communities. In this regard, also feasts play an important role. While there are mostly no social restrictions in the access to grave types, the distribution of graves and their size show some clear patterning with the anthropological case study and the archaeological test region in South-Eastern Schleswig-Holstein and North-Western Mecklenburg-Vorpommern suggest, that collective efforts are very important in monument construction. Based on the grave size, the required amounts and resources (e.g. workforce) for building might have been extremely high. Depending on the population of the settlements, cooperation between different settlements or communities must be seen as an important factor. An active use of such monuments for the display of status and economic success of individuals and a group as a whole are reasonable and important aspects. Possible principles of megalith building and the mechanism influencing it are analysed with regard to the collective character, which is reflected by different aspects of this specific tradition. The high economic expenditure, the ongoing relevance to the monuments in connection with feasting activities and collective aspects indicate importance in the preservation of a felt sense of group membership and community structure.

TH3-09 Abstract 07
The Boyne Valley, eastern Ireland – the epicentre of a Neolithic ‘super-ordinate’ identity?

Author: - McNeigh, Thor, NUI Galway, Galway, Ireland (Presenting author)
Keywords: Boyne, Neolithic, Ritual, Social structure
Presentation Preference: Oral

This paper explores the importance of the Boyne Valley Co. Meath, eastern Ireland in the construction and negotiation of group identities in the late-4th and mid-3rd millennium BC. The construction of substantial passage tombs at Dowth, Knowth and Newgrange indicates the potential significance of the Boyne Valley in the conception and mediation of large-group identities during the Middle Neolithic. It will be advanced that the sources of materials utilized in the construction of these monuments and the distribution of contemporary sites across eastern Ireland provide information about the scale and geographical extent of the groups involved in these construction projects in the later 4th millennium BC. The act of building will be considered from the perspective of strengthening group cohesiveness prior to the occurrence of large-scale gatherings at calendrically significant times of year. Evidence for Late Neolithic Grooved Ware associated feasting at Newgrange confirms the continued significance of the Boyne Valley in the constitution of large-scale group identities during the mid-3rd Millennium BC. An overview of evidence supporting the theory that large-scale winter solstice associated feasting took place at the site will be presented. A working hypothesis about the phasing of the activity will be outlined and estimation of the numbers involved in feasting at the site will be advanced. The significance of different scales of feasting event will be considered, and finally, the importance of calendrically scheduled winter solstice gatherings in the reinforcement of group identities will be discussed.
Building and Burying Together to Stay Together  
Author: Prof. Milor Bonny, Emily, California State University Fullerton, Long Beach, United States of America (Presenting author)  
Keywords: collective, Crete, tomb  
Presentation Preference: Oral

This paper argues that the construction of collective tombs at the beginning of the Bronze Age on Crete constitutes an example of building and burying to effect social cohesion. At the end of the Neolithic the early population of Crete dispersed across the island, yet evidence for durable settlements dateable to this period, with the exception of the major sites of Knoossos and Phaistos, remains scanty. Rather the social cohesion of these clusters of people was promoted through the construction of monumental collective tombs. With diameters of at least five meters the tombs were built of massive boulders the collection and transport of which to the site of the tomb required collaboration and social organization. The first tombs, which would have looked more like mounds than the cylindrical structures often portrayed in reconstructions, evoked the caves in which the Neolithic population lived and buried their dead and some of which remained in use during the Early Bronze Age. Having relocated to areas which lacked caves - and particularly to the south central part of the island - the settlers relocated their places of origin as a means of maintaining social unity. Although some have argued the tombs were built for the elite, burial goods were relatively modest; two to three pieces of pottery and perhaps a personal item - and the overall impression is that the mortuary practices were intended to bind the community together. There is no evidence in these early tombs for any individual receiving special attention. Instead it appears that every member of the group received the same treatment at the time of internment - deposition on the ground accompanied by a few objects. Bodies piled up over time, the desiccated remains swept to the side or long bones 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 proximal 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.

Looking for a spa? A social cohesion at Santovka - case study  
Author: Mgr. PhD Bača, Martin, Department of Archaeology, Faculty of Arts, Comenius University, Bratislava, Bratislava, Slovakia (Presenting author)  
Co-author(s): Šibík, Josef, Delft University, Delft, Netherlands (Presenting author)  
Keywords: religion, Slovakia, springs  
Presentation Preference: Oral

Santovka (formerly known as Majdrovec) is an Early Bronze Age - tell type settlement at southwest Slovakia. It is surrounded by thermal springs which are famous for their sulphuric qualities. An ongoing excavation project (spring seasons) uncovered a medium-sized fortified site, with exceptionally high number of prestigious artifacts of exotic origin and clear evidence of extensive metalworking activities. Ceramic production and consumption is pretty much homogeneous, with predominant elements of so called majatice, encrusted wares and otomani ceramic traditions. The character of uncovered finds as well as geographical position of the site suggests, that Santovka was a place, where identities were 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 of healing (solidarity) as well as religious (social integration) qualities and therefore of a supra-regional importance. If we accept the feastings as a background for social cohesion on subconscious level, than other shared ritualized activities are not so different. Moreover, collective producing, hunting and grain storage could play a similar role. In this paper we will present the role in context. Our methodology for studying social cohesion will be based on theoretical models influenced by studies of R. K. Merton and his followers. We will use these models for postulating hypothesis based on artifacts and observed archaeological events and environmental conditions.

Collective harvesting at Széchalombatta-Földvár, Central Hungary: a material cultural perspective  
Author: Halbrucker, Eva, Leiden University, Delft, Netherlands (Presenting author)  
Keywords: Bronze Age Hungary, harvesting, sickle blades, chieftain, power-centre, collective activity, social relations  
Presentation Preference: Oral

Investigating the sickle blades of Széchalombatta-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. Széchalombatta-Földvár, Central Hungary is a Bronze Age tell-settlement along the Benta river, at the delta of Benta river. Bronze Age in Hungary is the period between 2800-2700 BC and 800 BC. From this period, Széchalombatta represent 2000-1400 BC. This archaeological site has important role in the research of Bronze Age in Hungary – and abroad. The excavation of the Bronze Age fortified settlement was carried out within the framework of an international programme that was set up in order to examine the differences, similarities and connections between three different regions of Bronze Age Europe. Széchalombatta- Földvár, due to its size and geographical position, can be considered the head of the Bronze Age chieftain in the Benta valley, according to the model proposed by Earle and Kristiansen (2010). However, detailed research of the site itself is challenging this view. Comparisons of the material culture with other sites show little indications of a difference in social hierarchy within each site. Hence, instead of political differences, they might be economical. Sickle blades are common finds at the site of Széchalombatta-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 reason rare finds from their Bronze Age site from the valley (Priskin 2014). This information suggests harvest was a centralised communal activity controlled by Széchalombatta-Földvár. Thereby, harvesting (and sickle) could have been organised among social relations, and could help to keep allies these associations.

Social cohesion and social disintegration in Bronze Age Italy  
Author: Dr. Vanatti, Alessandro, Università di Roma “La Sapienza”, Roma, Italy (Presenting author)  
Co-author(s): Dr. Renzoni, Andrea, CNR - ISMA, Roma, Italy  
Keywords: Bronze Age Italy, social cohesion, social disintegration  
Presentation Preference: Oral

Like many Mediterranean societies, the towns of Bronze Age Italy were characterized by a highly stratified social structure and a wide range of political and economic organization. The study of social cohesion in Bronze Age Italy is still in its infancy, and much more research is needed to understand the factors that promoted or hindered social cohesion in these societies. The study of social cohesion in Bronze Age Italy is important for understanding the social organization of ancient Mediterranean societies, and for understanding the factors that promoted or hindered social cohesion in these societies. The study of social cohesion in Bronze Age Italy is important for understanding the social organization of ancient Mediterranean societies, and for understanding the factors that promoted or hindered social cohesion in these societies.
TH3-09 Abstract 13
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, Kardynal 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 Băia Mare, RO; Archaeological Institute, Karolym 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 observational aspects represented in Lapus. As a result of excavations and recent surveys within the project several contemporary or supposedly contemporary barrows with traces of comparable structures were detected. Thus ritual feasting in Lapus may also have functioned as means of competition among different families and an indicator of social distinction and a display of wealth and power.

The paper will address aspects of ritual behaviour on a theoretical as well as evidence based level.

TH3-09 Abstract 14
Do swords make warriors? Identity & cohesion among armed individuals in the European Bronze Age

Author - Notroff, Jens, German Archaeological Institute, Berlin, Germany (Presenting author)

Keywords: Bronze Age, swords, warriorhood

Presentation Preference - Oral

With the rise of the Bronze Age in Europe it seems that the sword as new and innovative weapon suddenly became assigned an importance beyond its mere role as armamentarium. A specialised group referred to as `elite warriors' in research tradition seemed to have been drawn a certain status from their peculiar role within a social system developing complex group identities and heavily drawing on cohesive communities. In the course of this paper the warrior's sword will be discussed as tangible (yet not exclusive) manifestation of such a group identity - apparently uniting (and dividing!) different levels of (functional) role and (social) status of Bronze Age warriorhood with a closer look at the weapon's changing expression in funerary ritual and deposition tradition of the Nordic Bronze Age. In the end the emblematical role of the sword symbol (respectively its substitutes) in the constitution of group cohesion as among individuals armed with and represented by a sword in Bronze Age Europe will be further explored.

TH3-09 Abstract 15
Social cohesiveness as concept of habitus through the lens of archaeological record

Author - Pape, Eleonore, German Archaeological Institute, Frankfurt am Main, Germany
Co-author(s) - Ulf, Regina, Eurasia Department of the German Archaeological Institute, Berlin, Germany (Presenting author)

Keywords: 3rd Millennium, habitus, social cohesion

Presentation Preference - Poster

Social cohesion can be expressed, created and maintained through a variety of ritualized (and/or) performative events which can respectively involve different group constellations that constitute society.

Following Bourdieu's concept of fields and habitus, we choose to focus on the entanglement and juxtaposition of different group identities at different levels, expressed through distinctive sets of material culture and features. Our experimental approach shall be applied to various case studies of the 3rd millennium BC in Europe from a cross-border macro-level to a multitude of local micro-scale units.

TH3-10 Abstract 01
Linear Pottery houses and their social context

Author - Dr. Zych, Renata, Białogda Tyczynska, Poland (Presenting author)

Keywords: houses, Linear Pottery, society

Presentation Preference - Oral

The population of Linear Pottery culture constructed stave houses in a rectangular fashion. They were not only in large settlements, but small settlements as well, consisting of one house and few related utility features. The construction of the houses was noticeably uniform.

The architecture of the houses depends on technical ability, but also on the cultural traditions of a given social group. The house is suited to people from that particular group, and therefore must materialize the group's common thought images that form the basis of its identity. Outlined here is the problem of the house as a phenomenon of forming society. Subjects of study included Linear Pottery houses in the territory of Poland.

TH3-10 Abstract 02
Ancestral Homes: Household Biographies in Late Iron Age Scotland

Author - Dr. Buster, Lindsay, University of Bradford, Halifax, United Kingdom (Presenting author)

Keywords: Biographies, Iron Age Scotland, Roundhouses

Presentation Preference - Oral

This paper presents the results of biographical and materiality approaches to the study of a group of well-preserved Late Iron Age houses at Brommouth in south-east Scotland. The roundhouses display a variety of different forms and fabric, and indicate the idiosyncratic nature of buildings which were far more than a passive backdrop to everyday life. Certain of the roundhouses, particularly those constructed in stone, demonstrate frequent and unusual developmental sequences and complex life histories, which were punctuated by special deposits. These modifications took place in a generation which appears to have been concerned with the renegotiation of household identity with relation to previous generations and ancestors. Furthermore, the referencing of certain special deposits by others laid down several centuries later suggests the presence of
strong oral histories and practices designed to prolong the memory of successive generations of inhabitants of these buildings. As such, the houses themselves (their fabric and their spatial organisation) appear to have been central to the construction, maintenance and renegotiation of household identity in later prehistoric Europe, as glimpsed through various ethnographic examples in the more recent past.

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TH3-10 Abstract 03

Household Archaeology in a small scale house in an early byzantine settlement

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

Keywords: Byzantium, Excavation, Household

Presentation Preference: Oral

The early byzantine settlement of Carin Grad in southern Serbia can be identified with the imperial city Lutiniana Prima known from De Aedifici ofProcopius which existed for merely 90 years. Without any marks of earlier or later occupation, the excavations provide undisturbed insight into everyday life in the 6th century. Excavations in Carin Grad take place since 1988. 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 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 excavations 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. The households will be placed in their social and physical context. Taking their perspective on the settlement raises the question of their mental and their everyday life. The household can be seen as the place where social roles are negotiated and thus as a social landscape which reflects the mentality of the dwellers. The analysis of installations and furnishing helps to understand activities carried out in daily routine and how the domestic space may be used. The observation which things were left behind or even don't appear in the archaeological record allows statements about the end of occupation. Life in Carin Grad took place in a time of far reaching cultural change. Written sources provide little insights in the situation of common life. In combination with the archaeological record they allow to delineate the possibilities of household-organisation for a specific historical situation.

The talk will examine if it is generally possible to work with the household concept if there are no specific structures or if it is rather necessary to apply it to gain more information. With regard to cultural formation processes this also raises the issue of the possibility to detect pauperism archaeologically. For this purpose it will present the archeological remains of a specific small house and compare it with the normal course of life in early Byzantium known from historic tradition.

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TH3-10 Abstract 04

Pottery as personal belonging in a Clarisses convent in Vilnius

Author: PhD student Urbanaviciute-Ugbl, Miglė, Klaipėda University, Klaipėda, 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 convents in the Netherlands and Germany. These marks are assessed as a personal sign of the owner. Most of these marked pottery fragments are uncovered from monasteries and convents. This fact leads to an interpretation that nuns and monks possessed their own ceramic dishes when 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 or numbers. 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 excavations will be discussed from the perspective of Household Archaeology.

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TH3-10 Abstract 05

House and Household – an archaeological approach

Author: PhD Tageson, Göran, Swedish National Museums, Linköping, Sweden (Presenting author)

Keywords: early modern period, household, houses

Presentation Preference: Oral

The household is commonly identified as a fundamental element of social organization in past times. In archaeology, the household has often been regarded as an essential level of research, in order to bridge the gap between grand theories of cultural change and the practical archaeology on the ground. Theoretical discussions as well as analyses based on empirical observations now tend to take place in dynamic interactions where the household is understood as a social unit, 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 production, property and consumption is confronted with the household as ideology, discourse and manifestation. The relationship between the physical house and the household as a social unit is no longer evident and has to be discussed.

In my paper I will discuss the possibilities to combine a vast bulk of archaeologically documented urban buildings from the 17th and 18th centuries in Kalmar, Linköping and Uppsala with detailed accounts of the households, the owners and their daily activities as recorded in the tax registers. The relations between the households and the buildings will be explored 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.

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TH3-10 Abstract 06

Houses, households, and workshops in early modern Swedish towns

Author: Prof. Lindstrom, Dag, Uppsala universitet, Uppsala, Sweden (Presenting author)

Presentation Preference: Oral

The historiography of the early modern household typically identifies the household as a well-defined and coherent unit of social organization, co-habitation and work. Recently more open and varied approaches towards house, family and household have been introduced. Interaction, permeability, and variation appear as important dimensions.

Relating to these new approaches and considering the material structure of houses and town plots, this paper discusses the organization of living space, households and work space in early modern Swedish towns. More precisely, it focuses on artisan households. It has been maintained that in early modern society the scene of labor was commonly the home, and that it was the development of wage labor that enhanced the separation of work and dwelling. Concerning artisan families, it is often taken more or less for granted, that artisans workshops in early modern towns were located in direct connection with their homes.

Evidence from 18th century Swedish towns displays a huge variation in size and structure of artisan households. When the perspective of cohabitation is combined with information about the spatial structure of houses and plots, complicated and varied patterns of social organization and social interaction appear. Analyses systematically combining information from written sources and archaeological evidence about artisans and workshops furthermore demonstrate a less evident connection between residence and workshop. These observations provide a more elaborated discussion on how we conceptualize what a workshop is.

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TH3-10 Abstract 07

Single households and the meaning of household in 18th century Sweden

Author: PhD Student Panu Savolainen, Finland (Presenting author)

Keywords: household, texts, space

Presentation Preference: Oral

The concept of household is, despite its evident meanings of our everyday reality, enigmatic for historians and archaeologists. What ‘household’ or related terms meant in times past, or how various demographic sources or material settings of archaeological sites represent or reflect the past domestic everyday life? My paper tackles the issue from the standpoint of single households (household that comprises of only one person). Single households appear in the poll tax records of the town of Turku (Sw. Åbo) in 1775 as the most common category of households. How often single households, however, lived in spatial terms ‘alone’ or formed an independent economic unit? Or more generally, how the administratively defined ‘household’ represented the reality of domestic everyday life?

I answer these questions using lower court (Sw. Kännersätten) minutes, where the everyday patterns of domestic life and space often emerge in the testimonies. The comparison of the court records to the poll tax records (or censuses), offers interesting glimpes to understand, how the administratively defined households and individuals used the domestic space. Were single households really single, or did they share their spatial precincts with the adjacent households? Finally, the case-studies concerns wider questions about the question, how historians and archaeologists should handle the concept ‘household’: to define it from the modern premises, to try to trace the historical formation of the concept, or to put it aside?

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ARCHIVES AND ARCHAEOLOGY — SOURCES FROM THE PAST, TOOLS FOR THE FUTURE

Saturday, 3 September 2016, 09:00-18:30
Faculty of History, Room 331

TH3-11 Abstract 01
Renovating practices in the history of archaeology
Author - Prof. Diaz-Andreu, Margarita, ICREA, Universitat de Barcelona, Barcelona, Spain (Presenting author)
Keywords: archives, history of archaeology, methodology, archives and archaeology
Presentation Preference - Oral

In this paper I will analyse my own experience of working in archives. I have been researching in archives on and off since 1995 and the experience gathered over the years has allowed me to refine several data compilation techniques. I have found that checking and cross-referencing the information I have gathered from archives over the years is one of the most challenging tasks archaeologists face. Interestingly, however, I soon realised that looking at archives was not only a question of new methods, but also of how questions were posed. Initial questions had to be revised to be able to use the considerable potential of the newly available data. In the main discoveries and events. The much wider variability of practices that historians of archaeology are employing today is also related to — and indeed in many cases requires — a change in the methods once used. Taking advantage of archives as a source of information is one of the main ways in which historians of archaeology have renovated their practice. However, their work is usually hindered by the fact that archaeologists are rarely trained for this. This may well, at least partially, explain the huge differences among those of us who search archives for information.

TH3-11 Abstract 02
Archaeological archives – A deconstruction
Author - Frydenberg, Hilde Sofie, Museum of Cultural History, University of Oslo, Oslo, Norway (Presenting author)
Keywords: archaeological archives, archaeological processes, theory of science and methodology
Presentation Preference - Oral

In this paper, I propose a critical examination of the archaeological archive. Using my personal experience as an archaeologist working in the archives at the Museum of Cultural History in Oslo as a point of departure and a case study, I intend to explore the concept of the archaeological archive from two different angles:

1. In archaeological research, archaeological contexts 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 been and has not been documented and kept in the archaeological archives is a product of changing paradigms and selective memory, whether conscious or unconscious. Even so, because of the destruction and displacement caused by an archaeological excavation, the original documentation is the closest we will ever get to the original situation, and archaeological archives, in general, will offer a description of how and why it came into being. From the point of view of research, an archaeological archive will also be the least biased source of information, as every re-interpretation from previous research adds a new layer of preconceptions.

TH3-11 Abstract 03
History of the Museo Nazionale Romano: arrangement and management from the beginning to the 1930s
Author - Pietroletti, Irenne, University of Rome Tor Vergata, Rome, Italy (Presenting author)
Keywords: Museo Nazionale Romano, Terme di Diocleziano, museology
Presentation Preference - Oral

Through research in various Italian archives, it is possible to reconstruct the history of the first national museums of Rome in the nineteenth and twentieth centuries. Some collections of documents (like those of the Archivio Centrale dello Stato) allow us to understand the institutional events that the museum experienced in the course of its life. For most recent events). However, this privileged position makes us aware that overarching ideologies are put into practice in ways that are sometimes not easy to detect. I will illustrate my talk with examples from my own work in the archives of correspondence relating to archaeological excavations such as Gordon Childe, Christopher Hawkes and Luís Pericot.
TH3-11 Abstract 04

Ontology of archaeological sources and the possibilities of archive - based research of Greek pottery

Author - Maślicki, Ważyniec, Jagiellonian University in Krakow, Kraków, Poland (Presenting author)

Keywords: archaeology, pottery of ancient Greece, theory of archaeology

Presentation Preference - Oral

In this paper I want to develop a very simple linear line of thought about the significance of the archives and archaeological documentation. In one of his papers James D'eza 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 perhaps add here however to 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 the archaeological sources, which makes properly maintained archives one of the most important factors for conducting studies. In my paper I will explore this inductive nature of the research by presenting the possibilities enabled by the introduction of joined archives for Greek painted pottery. Focusing on their main features like standardization of documentation, accessibility and others I will discuss benefits and drawbacks of archive-based research.

TH3-11 Abstract 05

Archives – Can You Dig It?

Time, Materiality, and the Archaeology of Archives

Author - De Amour, Thea, Oakland, CA, United States of America (Presenting author)
Co-authors: Duray, Anne, Stanford University, Stanford, United States of America

Keywords: archives, history of archaeology, materiality

Presentation Preference - Oral

Archaeology and the archive occupy similar metaphorical space. Both are regularly invoked as specific modes of historical thinking (consider, e.g., Foucault 1969, Derrida 1995, Oliver 2008), not only for their cultural resonance but also for the particular practices that underlie both archaeological and archival work – preservation, organization, and so on. And recently, both have been portrayed as (more or less intentional) materializations of memory, as palimpsest accretions, as memory practices (see, e.g., Lucas 2012, Shanks 2012). That archaeological practice quite literally entails the creation of an archive – that the archaeological process involves collecting, selecting, organizing, and preserving materials – will not be surprising to any of its practitioners. But, despite archaeologists’ familiarity with the archive of archaeology – as well the conceptual overlap between archaeology and the archive – practical considerations of what archaeology might bring to the archive have been relatively rare (Barid 2012). What is archaeology of the archive?

Following historians of science, Nathan Schlanger has argued that, “To reach the science in the making as much as the appraisal result, grasp the quotidian as much as the extraordinary, historians of archaeology need to turn to... the archives” (2010). Archives, more than published results contain the traces of scientific practices – of course, they are, at the same time, the traces of another set of practices. And so, historians of archaeology are in an exceedingly advantageous position to consider the conceptual overlap of archaeology and the archive.

Archaeology and the archive – beyond. One could ask when and how the methodological practice might bring to archival work. We consider this question via two very different archives, the archive of the Nichoria excavations, housed at the American School of Classical Studies in Athens (ASCSA), and the personal archive of the Czech philologist and archaeologist Antonín Salač (1885–1960), housed at the Academy of Sciences of the Czech Republic (AV ČR). The former consists materials produced during the Nichoria excavations – field notebooks, end of season reports, photographs – in an “organized” typology; the latter contains a great mass of textual ephemera, essentially unprocessed – the residue of Salač’s life. What does it mean to approach these archives, archaeologically? What do considerations of materiality – concomitantly, of context, of temporality – bring to these archives?

Recent conceptualizations of archives and archaeology as assemblages, as memory practices, are often attended by the idea that archaeology’s approach to the past is necessarily different from that of history – that history is sequential, perhaps, and that archaeology is instead focused on multiple temporalities. Ultimately, then, approaching our archives with specific reference to their materiality – their “archaeology” – we create histories of archaeology that destabilize boundaries between the “historical” and the “archaeological.”

TH3-11 Abstract 06

Archive and Archaeological Economy

Author - Gomes, Sérgio, Porto, Portugal (Presenting author)

Keywords: archaeological economy, archive

Presentation Preference - Oral

The concept of the archive came to me at different moments whilst I was investigating archaeology under the Estado Novo dictatorship in Portugal (1933–1974). In this research, I experienced archives “as a source” and “as a subject.” They were “a source” in the sense that archives were the “places” where I could find the raw materials to develop my work. They were “a subject” because, in picking up and ordering documents, I was constructing a “landscape” through which I was setting a research path; a “landscape” offering me clues and suggesting directions I hadn’t envisaged at the outset. This exploiting the way archives were questioning me, led me to read Jacques Derrida’s Archive Fever (1998) to try to understand this experience. Derrida shows us the archive as a place of two principles: the principle of commencement, since the archive is the place of physical, historical or ontological origin; and the principle of commandment, because the archive is also the place from which laws are exercised. This made sense to me because I was experiencing archives both as a source and as a subject, a place of “origins” (of documents) and “laws” (to re-organize my research). But, more importantly, with Derrida’s notion of the archive, I realized how this experience of using archives in doing “history of archaeology” was so close to the experience of doing archaeology itself, and how Derrida’s work could be read while thinking about the conditions under which we do archaeology. This perspective on Derrida’s work became clearer after reading Gavin Lucas ‘Understanding the Archaeological Record’ (2012) where Lucas argues that archives can be discussed as a translation process based on the interaction between ‘the site’ and ‘the copy’ (ibid.: 237–239). In this paper, I aim to look in detail at the intertwining of Derrida and Lucas’ ideas, with a view to discussing the limits and possibilities of the ways we shape our “archaeological economy” (ibid.: 231).

TH3-11 Abstract 07

Archives and Archaeology: some reflections based on the case study of Veleva

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Keywords: archives, history of Roman archaeology, restoration

Presentation Preference - Oral

In present-day archaeological fieldwork, a preliminary phase devoted to solid archival study is increasingly gaining an important role. Nevertheless, archival research has not yet become a “best practice” in archaeological fieldwork. This paper will highlight the importance of archives in archaeological fieldwork, both for reconstructing the history of an archaeological site, as well as for directing excavations and research properly. It is also essential to underline the importance of combining information provided by several archives of different types (cartographic, documentary, photographic), which, mostly and originally, were part of unique archives, standardized and transformed into other archives, over time.

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 1747, when pieces of the famous Tabula Ammianam Veileae were unearthed by chance. Such a long history – which consists of moments of excavations and restoration, followed by periods of inactivity – led to many undocumented changes, even to the planimetry of the buildings, due to restorations conducted without modern methods and cautions. Some restoring operations were undertaken during the excavations, in order to preserve the archaeological remains. Other restorations took place in the first part of the 19th century, due to the work of the architect Giovanni Antonio, 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 archaeological remains. Both in the case of the so-called ‘Amphitheatrum’ 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.

TH3-11 Abstract 08

Searching the archives in pursuit of ancient Cyrenaica

Author - Dr. Hab. Rakowska, Monika, Institute of Archaeology University of Warsaw, Warsaw, Poland (Presenting author)

Keywords: Cyrenaica, history of archaeology, socio-politics of archive records

Presentation Preference - Oral

In this paper, I want to develop an approach that uses archives as a method of ‘informed’, rather than just descriptive, research. In the 1930s, the German archaeologist Max Uhlenbroek made an important contribution to the understanding of ancient Cyrenaica, the region of northeastern Libya, where he excavated the site of Veleia. Despite the importance of his work, his archives have so far remained little known, with the consequence that the history of research in the region has been poorly understood.

Uhlenbroek’s archive provides a rare opportunity to explore the methodology of a European archaeologist working on the Levantine coast. It can be seen as a kind of ‘archive of the archive’: a record of Uhlenbroek’s own methods of research and of his approaches to the information he collected. In this paper, I will explore the ways in which Uhlenbroek’s approach to research can be applied to the study of Cyrenaica more generally. I will also consider the role of archives in the construction of knowledge about the region, and the ways in which this knowledge has been used to shape our understanding of ancient Cyrenaica.
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 rise to the visible delay in the 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, they illustrate the archaeology in transition from its pre-scientific to the scientific stage. The first topographical identifications were successively complemented by descriptions of the undertaken excavations and considerations about the ancient art. The history of discovering Cyrenaica enables us to capture and follow significant stages in the evolution ofarchaeological interests, pursued by scholars active both on the sites and behind their desks. However, the story could not be fully understood if deprived of the broader, political and social perspectives. From the beginning of the 19th century, when archaeological activities ceased to be purely private ventures, public authorities used archaeological travels to achieve their own purposes, including non-scientific ones. One of the first reactions was the establishment of the archaeological societies. From this point on, the archaeological era was recognized as an essential activity to justify an expansion in North Africa and the Middle East, on the other hand – the results of archaeological exploration: artefacts enriching museum collections, testifies the prestige of the state. This political context can be reconstructed thanks to the archive queries of unpublished documents kept in various state institutions, Archives Data, Historical Archives, Roman Architecture, Campus Martius. Since those documents reveal various undercover 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 allow also 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 Vattel 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.

Keywords: Archaeological societies, Roman Architecture, Campus Martius

Digging in the repository: finding the First World War in the University of Glasgow archives

Archaeologists and archivists share a material focus; our disciplines deal with the tangible past, the physical manifestation of history through objects, documents, and sites. Furthermore, we are drawn to our work by the tantalising promise of the thrill of discovery, bringing to light knowledge that has been forgotten or neglected in intervening centuries. Thus, the collaboration of archaeologists and archivists for Glasgow University’s Great War centenary commemoration project seems a natural fit. This paper reflects upon the experience of being an archaeologist and historian working in an archive, specifically examining the intersections of these two distinct but related practices while undertaking research into the First World War. Firstly, it highlights the role of archives within archaeology, such as the archives and records of the First World War, and how these can be used to contribute to the study of the war. It also explores the collaborative nature of archaeology and archives, and the importance of interdisciplinary approaches in understanding the past. The paper offers a glimpse into the process of research and discovery, and how archaeologists and archivists can work together to enrich our understanding of the past. Overall, the paper aims to provide a framework for future research and collaboration between archaeologists and archivists, and to encourage further exploration of the First World War through the lens of archives.
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?

TH3-11 Abstract 13

The relationship between archive documents and archaeological material of a naval conflict

Author - Mäkinen, Johanna, University of Helsinki, Sipoo, Finland (Presenting author)

Keywords: naval conflict, wreck sites, written documents

Presentation Preference - Oral

This research questions the role of archive documents in conflict archaeology. The second naval battle of Svenskaund took place on 9 July 1790 on the south coast of Finland, outside the modern city of Kotka. The battle was part of the Russo-Swedish War (1788–1790), and it is the largest naval battle ever fought in Northern Europe. The focus of this research is the apparent contradiction between archival documents about the battle, and existing archaeological material. The general view, based on written sources, is that a large number of the vessels of Russia's rowing fleet shipwrecked near Lehmäsaari Island, on the east side of the naval battle area, after being disadvantaged, partly due to weather conditions. However, only eight wreck sites have been located so far in the vicinity of Lehmäsaari Island. The small number of the wrecks has been explained by site formation – especially non-cultural – processes, but no comprehensive research has been published about this subject. The aim of this paper is to study this imbalanced relationship between archival documents and underwater archaeological material. The body of material interrogated consists of the archive – both primary and secondary sources – as well as archaeological material.

TH3-11 Abstract 14

Analysing Archived Material to Unravel Wheelhouse Chronologies in the Western Isles, Scotland

Author - Dr. Krus, Anthony, University of Glasgow, East Kilbride, United Kingdom (Presenting author)

Co-author(s) - Brown, Lisa, Historic Environment Scotland, Edinburgh, United Kingdom

Co-author(s) - Goldberg, Martin, National Museums Scotland, Edinburgh, United Kingdom

Keywords: Archival 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 research excavation which was undertaken in 1956 and 1957 in advance of the building of a Rocket Range in the Uists; the results of which were never published. In the 60 years since, the finds material and paper archive has found its way into the collections of a number of different institutions, including the National Museums Scotland, Kelvingrove Museum, Historic Environment Scotland, and the National Archives. Collation and analysis of this fragmented record has brought to light previously unrealised information about the excavated features, showing the presence of at least two wheelhouses and numerous related features. Details for the excavated deposits were lacking, although the location of the artefacts and the date they were found were recorded on the finds boxes; consequently, a finds matrix formed the basis for interpreting the stratigraphy on site. A radiocarbon dating program was undertaken to identify the timing and sequence of activity related to the wheelhouses. Twenty-six radiocarbon measurements were taken from single-entities of wood charcoal, animal bone, human bone, and pottery residue. A Bayesian approach that considered stratigraphic contexts and feature formation processes was used to estimate the site chronology and sequence. Results demonstrate that activity occurred primarily in the 2nd–1st centuries BC. The chronological analyses have also helped identify ancient curation and provide evidence addressing if Iron Age activity may have been more extensive than the two decades. 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.

TH3-11 Abstract 15

The Aerofototeca Nazionale of Rome: a photographic archive for the study of Italian heritage

Author - Foa, Lisa, Roma, Italy (Presenting author)

Keywords: archives, aerial archaeology, Adamesteanu

Presentation Preference - Oral

Today, with the use of commercial drones, aerial pictures of archaeological sites and landscapes can be easily obtained, and thanks to more or less user-friendly software, easily processed – as it was recently discussed at the 2nd International Aerial Archaeology Conference that took place in Rome in February 2016 – and present-day records can be compared with “pre-economic boom” images to better understand what has changed in our landscapes and single sites. Since its creation, the Aerofototeca Nazionale, based in Rome, has acquired several different collections of aerial photographs. Today it houses aephotographic materials that date from the very end of the 19th century (e.g., the images taken by G. Boni during his excavations in the Roman Forum) to recent years. The core of the collections are the thousands of images taken by the Allied air forces while surveying war zones during WWII; despite their often precarious preservation state, those images depict several areas of the Italian Peninsula that look totally different today, due to the growth of urban areas and the development of infrastructures. The Aerofototeca, founded in 1958, is a historical photographic archive of the ICDD – Istituto Centrale del Catalogo e Documentazione – part of the Italian Ministry of Culture (MBACT). The archaeological Diou Adamesteanu was the first director of the Aerofototeca. He organized the first body of archival materials and designed the archive as an instrument for the collection, preservation, cataloguing and study of aerial photographic records. The Aerofototeca is an essential source for archaeological research and the safeguarding of our heritage. The author of this paper, during an 18-month internship at the Aerofototeca, followed by field research, worked on the rearrangement of a group of more than 4,000 slides, the so called “fondo Adamesteanu”, (a focus on a selection of those slides was published on the periodical Archeologia Aerea VI, 2012). The aim of this paper is to show a few examples of the potential of this archive as a fundamental source for understanding the development of our fast-changing landscapes and as a tool for the safeguarding of Italian archaeological sites. In particular, starting from the pioneering 1908 aerophotographic survey of a stretch of the Tiber River, some areas along the river will be analyzed on the basis of the materials available at the Aerofototeca, retracing phases of ancient and recent history of the landscape.

TH3-11 Abstract 16

Endangered Archaeology in the Archives: utilizing historical aerial photography to assess heritage

Author - Banks, Rebecca, University of Oxford, Oxford, Oxford, United Kingdom (Presenting author)

Keywords: aerial photography, databases, heritage under threat

Presentation Preference - Oral

The Endangered Archaeology of the Middle East and North Africa (EAMENA) project aims to locate, document and monitor archaeological sites and any damage to those sites in an online platform for the Middle East and North Africa region utilizing remote sensing and networks of professionals. The threat to archaeological sites due to political and social upheaval in the MENA region has drawn much attention and is being effectively monitored remotely by a number of projects, but the more gradual threats to sites from development and agriculture over the last century are less well documented. Historical aerial imagery collected from the first half of the 20th century are a fantastic resource that has captured landscapes and sites before modern development, population increase and conflict drastically changed the region and accelerated heritage loss. The collections however are scattered between institutions and many are poorly documented. The paper will present how EAMENA with the Aerial Photographic Archive for Archaeology in the Middle East (APAME) has begun working with these collections to not only utilise a fantastic resource for the documentation of heritage, but to digitise and facilitate knowledge sharing of what these collections hold.

TH3-11 Abstract 17

Another kind of archive: on the preservation of publications and born-digital material

Author - O’Riordan, Emma Jane, Society of Antiquaries of Scotland, Edinburgh, United Kingdom (Presenting author)

Co-author(s) - Osborne-Martin, Erin, Society of Antiquaries of Scotland, Edinburgh, United Kingdom

Keywords: archaeology, digital, publications

Presentation Preference - Oral

The Endangered Archaeology of the Middle East and North Africa (EAMENA) project aims to locate, document and monitor archaeological sites and any damage to those sites in an online platform for the Middle East and North Africa region utilizing remote sensing and networks of professionals. The threat to archaeological sites due to political and social upheaval in the MENA region has drawn much attention and is being effectively monitored remotely by a number of projects, but the more gradual threats to sites from development and agriculture over the last century are less well documented. Historical aerial imagery collected from the first half of the 20th century are a fantastic resource that has captured landscapes and sites before modern development, population increase and conflict drastically changed the region and accelerated heritage loss. The collections however are scattered between institutions and many are poorly documented. The paper will present how EAMENA with the Aerial Photographic Archive for Archaeology in the Middle East (APAME) has begun working with these collections to not only utilise a fantastic resource for the documentation of heritage, but to digitise and facilitate knowledge sharing of what these collections hold.
The Society of Antiquaries of Scotland has been publishing since 1782 and has produced the journal Proceedings of the Society of Antiquaries of Scotland (PSAS) annually since 1851. These volumes provide a record of research excavations, rescue excavations, archaeological surveys, studies of objects, overviews of historical records, publication reviews and more. Physical copies of the Proceedings are sent every year to Fellows of the Society as well as to libraries and institutions across the world. In 2001, the Society began scanning our PSAS archive and since 2003, PDFs of papers more than a year old are available to view freely online via the Archaeological Data Service (http://archaeologicaldatasevice.ac.uk/archives/view/pass/index.html). Since 2011, users have downloaded PSAS articles more than 386,000 times. We also host the full text of our out-of-print monographs and Scottish Archaeological Internet Reports (SAIR) with the ADS. The sheer amount of archaeological knowledge that our published volumes contain makes it an indispensable resource for anyone studying the history of antiquarianism and archaeology in Scotland, as well as a treasure trove of detailed information on archaeological sites and artefacts. As these publications cover hundreds of years of research, thousands of different objects and sites and hundreds of authors, their common link is often the Society itself. How can the Society best use its own heritage and archives to inform future work? One of the research projects of the Society is the Scottish Archaeological Research Framework (SARF). This free-to-use online resource (www.scottishheritagehub.com) summarises what the acknowledged experts in their fields – not only archaeologists but also those in related disciplines such as geosciences, environmental sciences, history and museums – thought about Scottish archaeological knowledge at the time of the first reports in 2012. The work is divided by time period and each period ‘panel’ made a series of recommendations for future research. Now, in 2016, the panels are beginning work on the next version of these reports. This will mean that the 2012 reports become, in effect, an archive themselves. One of the challenges moving forward will be to ensure that as the first set of questions posed are answered, that the archaeological information that led to them are not forgotten but archived so that in the future, contemporary trends and lines of thinking can be studied. It is planned that the new reports will contain links to more of the raw data and archives used in their creation and it is possible that many of these data and archives will be available online. However, the ability to view these will only be a useful addition if they are openly accessible. The Society has a privileged position from which to think about the long-term survival of our archaeological heritage as it has been around since 1782 and, as long as there Fellows with an interest in Scottish archaeology and history, will remain for the decades and centuries to come. How can we ensure that our rich history and archives will remain visible and relevant for as long as they are needed? © The Authors 2016. This article is distributed under the terms of the Creative Commons Attribution License (http://creativecommons.org/licenses/by/4.0/) which permits any use, distribution and reproduction in any medium, provided the original author(s) and source are credited. 

TH3-11 Abstract 18
Ancient inscriptions and digital archives: offering an undeciphered script to the public

Author - Dr. Tomás Helena, University of Zagreb, Zagreb, Croatia (Presenting author)

Keywords: 3D scanning, ancient inscriptions, digital archives

Presentation Preference - Oral

Creating databases with digital archives of ancient inscriptions has become customary over the past decade. Digital databases of cuneiform tablets are particularly popular, and thanks to advanced digital technologies, especially 3D scanning, thousands of cuneiform inscriptions can now be freely browsed through by both specialists and non-specialists, meaning that they have become easily accessible to anyone interested in studying them. Yet, there are many inscriptions in other ancient scripts that still await a similar treatment. One such script belongs to the realm of the earliest European literacy: Linear A, used during the Minoan civilisation and still undeciphered. A digital archive of clay tablets inscribed with this script is still non-existent, but hopefully such a state of affairs is soon to be changed. By taking Linear A tablets as a case-study, the paper presents various aspects of how their understanding of ancient inscriptions can be improved by using their 3D images. Previously used plaster casts, photographs, drawings and text copies of tablets have not proved accurate enough, especially when it comes to analysing various physical features of tablets. For decades clay tablets were treated as secondary to inscriptions they carried, and it is fairly new to approach those documents as archaeological objects themselves and pay full attention to their physical properties. Studying those physical features of tablets makes it an indispensable resource for anyone studying the history of antiquarianism and archaeology in Scotland, as well as a treasure trove of detailed information on archaeological sites and artefacts. As these publications cover hundreds of years of research, thousands of different objects and sites and hundreds of authors, their common link is often the Society itself. How can the Society best use its own heritage and archives to inform future work? One of the research projects of the Society is the Scottish Archaeological Research Framework (SARF). This free-to-use online resource (www.scottishheritagehub.com) summarises what the acknowledged experts in their fields – not only archaeologists but also those in related disciplines such as geosciences, environmental sciences, history and museums – thought about Scottish archaeological knowledge at the time of the first reports in 2012. The work is divided by time period and each period ‘panel’ made a series of recommendations for future research. Now, in 2016, the panels are beginning work on the next version of these reports. This will mean that the 2012 reports become, in effect, an archive themselves. One of the challenges moving forward will be to ensure that as the first set of questions posed are answered, that the archaeological information that led to them are not forgotten but archived so that in the future, contemporary trends and lines of thinking can be studied. It is planned that the new reports will contain links to more of the raw data and archives used in their creation and it is possible that many of these data and archives will be available online. However, the ability to view these will only be a useful addition if they are openly accessible. The Society has a privileged position from which to think about the long-term survival of our archaeological heritage as it has been around since 1782 and, as long as there Fellows with an interest in Scottish archaeology and history, will remain for the decades and centuries to come. How can we ensure that our rich history and archives will remain visible and relevant for as long as they are needed? © The Authors 2016. This article is distributed under the terms of the Creative Commons Attribution License (http://creativecommons.org/licenses/by/4.0/) which permits any use, distribution and reproduction in any medium, provided the original author(s) and source are credited. 

TH3-11 Abstract 19
An essential documentation from the A. D. Archive of Rome to throw light on archaeological issues

Author - Vecchiome, Alessandro, Sapienza - University of Rome, Rome, Italy (Presenting author)

Keywords: archive, Hadrian, Rome

Presentation Preference - Poster

In the era of MDAS (Massive Data Acquisition Systems) applied to archaeological sites the battle between the so-called “old” and “new” research methodologies and data recording techniques is burning up. But at the moment there is still something invisible even to the best-informed experts: the traditional data archives. Thinking as a human being is unavoidable to unlock this large number of items we need to use. The Historical and contemporary Archives of the Soprintendenza agli Scavi e Monumenti della Provincia di Roma was created in 1780, just a day after the Porta Pia breach and the conquest of Rome by the Kingdom of Italy. The first purpose of the archive was to record all the activities connected to archaeological findings: defending remains and monuments inside the Aurelian Wall and in the wide Lazio countryside asked for, obviously, a huge effort from such a young office. The author of this paper had different chances to study Emperor Hadrian’s properties; the BA thesis was on Salvatore Aurigemma’s archival fund that provides a huge data about the excavation and safeguarding of Villa Adriana during and after 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 il Colosseo, 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 Attilla, is a public cultural place intended for the community. The contemporary shape of the office is being developed within (and by) the Soprintendenza of Rome within the “Service of Historical Archives”. The ADA is intended for scholars of Roman archaeology and it has become a meeting place of knowledge sharing and exchange. For that purpose the website hosts a huge number of online data such as the “excavation report”, e-books and, soon to be published, the iconographic collection.

The author of this paper was involved in a nearly two-year long work, supporting the activity of archiving and digitising data into different DB systems. The aforementioned case studies are helpful examples of the role of data archives in present-day archaeological research processes.
TH3-12 Abstract 01
From Office to Field: Developing University of North Georgia’s Sicilian Archaeological Field School
Author - Prof. Balco, University of North Georgia, Dahlonega, Georgia, United States of America (Presenting author)
Keywords: Engaged archaeology, field school, instructional research
Presentation Preference - Oral
Archaeological field schools are the primary means to expose students to their first excavation and to train future generations of professional archaeologists. During these programs, students are engaged in experiential learning, critical thinking, and cultural experiences. Likewise, the development of an archaeological field school often engages university administrators and faculty in a similar manner, introducing them to the nuances of scientific archaeological fieldwork in diverse settings. This paper discusses the challenges facing faculty and administrators as they face together when developing an international archaeological field school. Such programs break the mold of a traditional study abroad program by involving complex logistics, risk management strategies, site locations, course schedules, and learning outcomes. University of North Georgia’s Sicilian Archaeological Field School serves as a case study for the development and implementation of a new international program requiring close collaboration between university, civic, and regional partners. This program blends instruction with research to provide students with a holistic experience. The primary purpose of this session is to analyze archaeologists’ working methods on developing a successful field school, with the aim of answering the questions above. The discussion should focus on issues encountered during the development of projects and on means for providing the best training for archaeology students, where the focus should be placed on improving their skills in a limited time-span, but also reducing the costs of running the field school.

TH3-12 Abstract 02
The many meanings of Archeological Education: field schools in archelogical heritage management
Author - Dr. Perez-Juez, Amalia, Boston University, Madrid, Spain (Presenting author)
Co-author(s) - Dr. Elia, Ricardo J., Boston University, Boston, United States of America
Co-author(s) - Langlitz, Meredith A., Boston University, Boston, United States of America
Keywords: field school, heritage, training
Presentation Preference - Oral
Archaeological Education is going through either a crisis or an expansion; through revision or agony. It very much depends on the observer and the field from which he or she comes. In Europe, archaeology used to be taught solely in History departments. In the United States, it is part of Anthropology or Classics Department. Archaeological Science is becoming increasingly relevant, and techniques in which no digging is involved are preferred by researchers. What about Archeological Heritage Management (AHM)? What is the specific weight and role in this new higher education landscape? AHM is frequently treated as an appendage to traditional research rather than an essential element to be planned for from the beginning. It is also taught in the final semesters of a degree, as it traditionally reflects something done at the end. Interestingly enough, a good number of graduates in archaeology find jobs related to AHM: museums, historical societies, international organizations, cultural tourism, etc. This disconnection between what we are teaching our students and what awaits them in the outside world needs some attention. Over the past several years, the authors have been incorporating AHM as an integral part of our curriculum, both in the classroom and on the field, and in study-abroad programs. We have also developed and implemented a field school that goes beyond traditional training in practical skills of surveying, excavation, recording, and artifact processing, and deals primarily with the idea of heritage management and the 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 stewardship: preservation, interpretation, management, and public outreach of archaeological resources. We want to share the reasons for this shift, and the challenges we have faced to make it work.

TH3-12 Abstract 03
How to improve the offered preparation and avoid the risk of "fake" field school
Author - Vecchiet, Costanza, Durham University, Trieste, Italy (Presenting author)
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- Langlitz, Meredith A., Boston University, Boston, United States of America

Field school seems to be a compulsory “step” every future archaeologist is required to attend to form and train his/her skills, useful for any future career. However, over the past decades - especially the last two - a steadily increasing lack in number of sponsors and fundings opened the access to excavation areas to volunteers and non technician, in love with this job, holding partials or no skills at all, but available to help and enjoy the digging experience in change, sometimes, only of accommodation and meals.
Surely, to some extent, the contribution volunteers gave to archaeology has been wide and important in order to carry on some excavation valued little. But is it safe, both for security and carefulness of the work, replace in the hand of not paid and not formed specialist the work that should be led by professional archaeologist?
Universities are the first bodies alloing to test our abilities, training our skills and checking our work during the whole excavation session. Otherwise, especially in certain countries were the practices of field school on “real” excavations are opened the access to excavation areas to volunteers and non technician, in love with this job, holding partials or no skills at all, but available to help and enjoy the digging experience in change, sometimes, only of accommodation and meals.
Surely, to some extent, the contribution volunteers gave to archaeology has been wide and important in order to carry on some excavation valued little. But is it safe, both for security and carefulness of the work, replace in the hand of not paid and not formed specialist the work that should be led by professional archaeologists?

This paper is aiming to analyze both the academical and the private sector, trying to outline fixed point and guiding lines the two of them should use when offering an amazing, but truly worthy, field school experience.
The processing of all samples from Abrigo do Pego has been set up focusing on Material Culture Studies. Usually, the participants learn about Roman material culture through a series of introductory lectures on a specific class of material (glass, pottery, small finds, faunal remains, environmental samples etc). Then, they spend a week working hands on the finds recovered during the excavations. They learn how to deal with material culture, in terms of reconstructing the economy and society behind it, how to draw archaeological finds and how to reach a chronology for the context first, and the settlement then. This paper will describe the construction of the training school at the Albereean Archaeological Project, emphasizing the reasons (as well as the benefits) of paying tuition fees and how the schools work in the direction of satisfying the participant’s expectations. Data will be provided to quantify and measure the results of the schools in terms of future employment for the participants. Finally, this paper draws its conclusions upon the importance of the training schools, not only in terms of improving the participants’ knowledge and skills, but especially in terms of the learning environment and career network development they collects. The combination of university and non-university institutions, leading and organizing the schools and their related activities, represents a plus in the experience of the participants. Moreover, a point will be made on the opportunity offered also to young specialists and scholars to develop their own teaching experience, helping them to enhance their future careers in academia or in professional archaeological units.

TH3-12 Abstract 07
Silchester Insula IX Town Life Project.
A good example of management, training and public engagement
Author - Edwards, Bedin, UCL, London, United Kingdom (Presenting author)
Keywords: Field-School, Silchester, Students
Presentation Preference - Oral
Archaeological Field Schools have been for many years now seen as the suitable environment in which archaeology students can be trained to become professional archaeologists. In the last decade Field Schools have become very popular and are no longer exclusively run by Universities but are increasingly run by private institutions.

This paper is based on the author’s experience at University of Reading Field School Silchester Insula IX: Town Life Project (2011-2014) and it is to present through the analysis of detailed data, interviews with former participants, personal experiences of the field school organisation and learning process which transformed (some) students into Silchester Insula IX supervisors and professional archaeologists. It will describe the author’s participation – first as overseas student and then the path he had to follow in order to become one of the trench-supervisors – responsible for a group of 15-25 students and volunteers. What is the role of a supervisor and what are the tasks of this key figure? especially regarding teaching/learning and health&safety, site documentation, site management, site supervision and archaeological reports are some of the points that will be discussed. The second purpose of this paper is to present: firstly, what are the issues (i.e. health&safety, students’ satisfaction, visitors on site), dangers (i.e. funding, conservation, post-excavation projects) and threats (i.e. high fees), that this Field school dealt with on site), dangers (i.e. funding, conservation, post-excavation projects) and threats (i.e. high fees), that this Field school dealt with at least in Italy, allowing some important project to be realized even after all.

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.

TH3-12 Abstract 08
To what extent can management skills help archaeological sites in their selfsustainance?
Author - Vecchiet, Costanza, Durham University, Trieste, Italy (Presenting author)
Keywords: Archaeology, Future, Management
Presentation Preference - Oral
Sadly, we are living in an era in which archaeological and general cultural heritage are often downgraded with scarce financial help and bad evaluation of their potential, both economical and educational. Over the last two decades, new types of possible financing (like crowdfunding and small donation from private bodies) have offset the vacuum of state financial assistance – at least in Italy - allowing some important project to be realized ever after all. Nevertheless, it is undeniable this cannot be considered a long term solution, and new perspectives for the maintenance of archaeological sites and cultural areas need to be founded out and seriously taken into account.
One of this could be and, in the daily scenario, must honestly be an attempt to self-sustaining by the excavations and of the cultural projects themselves. It is in this renewal air and management reorganization that new Master and specialized courses were born. They are born because of the sector specialists having realized how important it is for the survival of archaeology and free management find a way to make culture more accessible, not a slave to political austerity. Several can be the ideas an archaeological site could develop in order to achieve its “freedom”: paid guided tours, small gadget for visitors, open days/weekend for families during which could be asked a small contribution for excavation maintenance. Everything it is up to the archaeologists and their skills in understanding what people really want, and what people are really keen and available in paying for.

Certainly, also enriching the staff with one or two specialized managers could be a good idea, but why do not melting archaeological and managing knowledge all in the hands of ones who really run the excavation and its activities?

These, obviously, are just some suggestion. Thus, analyzing and comparing experiences tested already, the present paper will try to give an overview about the current status of archaeology and its future opportunities and possibilities if well managed.

TH3-12 Abstract 09
Site management and business plans, conservation and public engagement issues and opportunities

Author - Edoardo, Bedin, UCL, London, United Kingdom (Presenting author)
Keywords: Financial self-sufficiency, Site management, Sustainability
Presentation Preference - Oral

Archaeological projects have been for many years now considered enterprises run mainly by public funding. Additionally, in many countries it is a commonly accepted notion that supporting heritage will automatically mean money loss and the need for extra funding is a constant “curse” for many site managers. In particular cases insufficient funding precludes the management of the site from running even basic maintenance work, consequently causing bad publicity, as less areas become accessible for visiting, and reducing the opportunities to improve the site facilities.

The primary purpose of this paper is to explore through case-studies what are the key aspects of a successful management plan and business plan and what are the major financial, political issues encountered during the development of projects and how to handle these issues. It will also highlight the importance of involving different stakeholders as means to increase the chances of the success of site management, its conservation and valorisation.

The second purpose is to explore limitations in achieving financial self-sufficiency while managing an archaeological site and demonstrating the need to change the approach to Italian Heritage in order to “rescue” it from the risk of abandonment due to lack of funds. If a site can reduce the reliance of public funds it will protect the site from possible conservation and valorisation issues 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.

The last goal of this paper is to explore what actions can be taken to reach a much wider public, including those that would not naturally come to visit the site, and understand the possible threats of the rise of visitor numbers, while investigating the possible benefits in terms of job creation within the site and in the buffer zone.

The final question which will be tried to answer is: are all sites potentially sustainable or is it necessary to consider the closure of some to preserve them until more funds become available?

TH3-12 Abstract 10
Drama - Merdzhumekia:
German archaeological field-school in Bulgaria

Author - Valchev, Todor, Regional historical museum - Yambol, Yambol, Bulgaria (Presenting author)
Keywords: archaeological field-school, Drama - Merdzhumekia, German methodology
Presentation Preference - Poster

The prehistoric settlement mound Merdzhumekia was situated near the village of Drama in the Tundzha municipality, Yambol district. It has been completely excavated during the Bulgarian-German project from 1983 to 2011. The joint project was undertaken by Sofia University “St. Kliment Ohridski” in Bulgaria and Saarland University in Germany. The international project was led by prof. Alexander För, prof. Jan Lichardus, prof. Francesca Bartheims and Iliya Iliiev.

The aims of this project is to present the methodology used by German scholars during the archaeological excavations in the village of Drama. The system permitted students to participate in all aspects of the project: archaeological excavations, graphic documentation and processing of ceramic materials and finds.

During the international project, more than 300 students and University assistants participated from Bulgaria, Germany, Czech Republic, Slovakia, Hungary and Luxembourg. Some of them are now leading archaeologists and University professors in Bulgaria, Germany and England.
Theoretical and methodological perspectives in archaeology

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 pinboard at the venue.

CREATIVE ARCHAEOLOGIES II
CONTINUING THEORETIC AND PRACTICE IN A NEW BRANCH WITHIN THE FIELD OF ARCHAEOLOGY

Saturday, 3 September 2016, 09:00-13:00
Faculty of Philology, Room 114
Author - Dr. MacGregor, Gavin, Northlight Heritage, Glasgow, United Kingdom (Presenting author)
Co-author(s) - Danis, Annie, University of California, Berkeley, United States of America
Keywords: art, creative archaeology, heritage, interpretation
Presentation Preference - Workshop
Hegemonic thinker Freeman Tilden (1957) claims that the chief aim of interpretation is not instruction, but provocation. Archaeologists in recent years have explored the potential for artistic practice to contribute to this kind of interpretation of the past. Last year organizers of the session “Creative Archaeologies” asked whether instead of continuing to rely the distinction between art and archaeology, we should rather be thinking in terms of new forms of creative practice. This session continues that exploration to create ground for a new kind of branch/network within archaeology, one called Creative Archaeologies.

This workshop combines conventional lecture presentation, with film, video, installation, and performance to probe the depths of current creative practice in archaeology. These projects blur the boundaries between Anthropology, Archaeology, Art and Natural Science and produce innovative archaeologies and unconventional outcomes.

To define the approach participants consider existing projects, proposed creative acts, and reflections on creative practice’s impact on both archaeological and artistic thinking. What is creative archaeology? What are the implications of such a practice for the discipline? Creative archaeologies utilize new tools, frameworks, and venues to expand the impact of archaeological practice and reflect on its position within contemporary society. Moving beyond uni-directional collaboration in which an artist interprets archaeological work, an archaelogist reflects on the artist’s interpretation, this session invites projects in which creative practice intervenes at many stages and from many directions.

Among The Dead Dunes, Some Trees Glow Like The Sun
Author - Dr. MacGregor, Gavin, Northlight Heritage, Glasgow, United Kingdom (Presenting author)
Keywords: Archaeology, Art, Creativity
Presentation Preference - Oral
In this piece,

You may encounter the past,

But you might leave

Holding the future in your hands.

The Archaeology of Pinboards – the future and the past in ads and posters
Author - Archaeological Grahn Danielson, Benjamin, Picea kulturarv, Fors, Sweden (Presenting author)
Keywords: Community, Future Archaeology, Pinboards
Presentation Preference - Oral
One ice cold day in the middle of March 2015 I was standing at the mainstreet of the small town Kopparberg, wondering what I was up to? In less then two hours a group of artists, artlovers from all over the world, some locals and national television would arrive to participate in the excavation of the pinboard right where I was standing. Two days earlier I had launched the idea of excavating a public pinboard, as an archaeologocal method of finding the essence of Kopparberg, the future of the society, or at least what people where doing here. Because when asking the locals, no answers were given. Most common answer was “nothing”, or just vague answers about going to school, work, church or just going away to Örebro (the nearest city) when every change was given...

Archaeology can provide information about the contemporary life in a small town, and give another picture. In this case, national media was telling a story about Kopparberg as a depressing place, nothing happens there, the unemployement rate and the number of holliday homes in the area is the hihethest in Sweden, everyone wants to move away and the municipality will be the first to disappair in the country. But in fact, archaeology provided a totally different picture, a picture about people and a struggling community.

Archaeological carpentry. Doing theory with your hands
Author - Dr. Mikluz, Dimitrij, University of Ljubljana, Institute for the protection of Cultural heritage, Ljubljana, Slovenia (Presenting author)
Keywords: art, carpentry, theory
Presentation Preference - Oral
In the introduction to his book “ Alien Phenomenology” (2012) Ian Bogost suggests that philosophers ought not just to write philosophy, at least not without practicing, doing, or making. He urges engagement in carpentry: constructing artifacts that do philosophy. This is more than artistic practice, carpentry is a perspective on creative work that asks philosophical questions. Or put in another way, carpentry is what you call it when things (including art) are used or made for philosophical use. I want do explore the use of carpentry as new forms of creative practice in archaeology, playful practice, that can help us to develop and architectural concepts.

I want to explore the use of “philosophical carpentry” using an example from my own work on archaeology of milk (Mikluz 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 mimetizes (of bacteria, enzymes, cows, strainers, lactose, guts, calfs, 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 realting objects creates surprising new assemblages, ecologies and associations and opens ways to new, creative understandings of milk assemblage.

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 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 two-dimensional installations) and finishing with more traditional photos, sketches and drawings. In all these cases, archaeologist or the members of their team are making every effort to organize the excavation area, achieving the best light, locating the characters and generally working either as scriptwriters, or as a directors and cameraman, and certainly more often as a common 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 archeology of the XIX-XX centuries there are plenty of examples of cooperation between the archaeologists and artists. The study of these examples could in time become an important direction of the special art-research.

In the report the results of the author's observations on the creative approach to the archaeological monuments in Russia would be demonstrated.
Archaeological field schools are viewed as the first port of call for students aspiring to become archaeologists. On top of this, they are often major research outlets for universities and archaeological organizations, and often come to represent the sector on television and in publications. Their position and importance in the sector is well developed and, until now, viewed as well understood.

When starting research on field schools in the UK, confused responses were given to simple questions on definition, curriculum, length, cost, demographic and standards. I subsequently set out to start to answer some of these questions over three stages. The first developed the context, looking at how training in practical archaeology had developed over the last 50 years in relation to the economy, government legislation and the archaeological sector in general. The second addressed the issue of definition; comparing the different terms used for practical training - ‘field school’, ‘course’, ‘dig’, ‘fieldwork’, ‘excavation’ etc. - and seeing where the term ‘field school’ belonged and, importantly, who belonged within it. The balance discussions from sections 1 and 2, the final section 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 lacking regularity on the length, demographic and curriculum on offer.

What this research shows is a fundamental area of the archaeological sector which, in the UK and contrary to its academic counterpart, has failed to develop in a way which caters to the demands and regulations required by its participants. In light of the economic difficulties field schools are facing, they are being forced to compromise and develop. It is therefore a perfect opportunity, albeit well overdue, to develop field school as strategic assets for the sector and wider cultural heritage, as well as a fairer environment for those taking part. The data produced and topics discussed in this paper hope to mark the start of this process.

TH3-13 Abstract 06
Visual aesthetic of archaeological practice: a creative approach

Author - Mermel-Martínez, José-Antonio, Arqueología de Guardia Association, Benajara (Murcia), Spain (Presenting author)
Keywords: archaeological practice, Archaeological theory, creative archaeology
Presentation Preference - Oral

The image projected by the archaeologists in the archaeological practice on the sites has set the social valuation of Archaeology in terms of relevance and usefulness. However, the procedures followed in the archaeological research have blocked, in many cases, the consideration of Archaeology as an activist practice to integrate, on purpose, the archaeological work 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 aesthetical 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 activist sense to fight the injustice derived from the integration processes at the moment of social and economic development.

TH3-13 Abstract 07
Kulmin - digital dissemination of cultural heritage

Author - Priestvold, Kristin, Sør-Trøndelag County Authority, Trondheim, Norway (Presenting author)
Keywords: digital dissemination, Kulmin
Presentation Preference - Oral

How do we inspire curiosity and interest in heritage and cultural history when the personal guide is absent? How can we create wonder and sense of place and time in the encounter between people and cultural heritage without a good storyteller?

Sør-Trøndelag County Authority has developed a product and a strategy for digital dissemination of cultural heritage via mobile phones and tablets named Kulmin. Focus is on the good story, the good storyline. Focus is man, 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 - Bangabo Disinga, Nina, Municipality of Skanderborg, Skanderborg, Denmark
Co-author(s) - Purup, Marianne, Visit Skanderborg, Ry, Denmark
Co-author(s) - Hjert-Madsen, Lone, Museum Skanderborg, Skanderborg, Denmark (Presenting author)
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 neighbourhood in a town can, at one point, be considered a slum, and during another period house individuals and families of the upper class. The general layout of the area may be almost identical, while the population, interiors and details have changed.

The meaning of words like urban, village or hamlet are not at all simple and straightforward, and the particularity of given timespace situations is of great importance. In the Early Modern setting the town becomes a kind of ideal, in different ways for different actors, while still being a relatively unusual settlement form.

We wish to develop an analytical approach, which helps to identify similarities, while acknowledging the significance of the variability. When exploring settlements we need a broad range of theories and methods to work with and it is important to avoid initiating the analysis with rigid concepts and models. Instead of departing from simple typologies at the first stage of analysis, it could be more interesting and advantageous to start by tracing several factors, and subsequently look for correlations. It is most likely that such an approach allows for multiple perspectives when identifying socially, economically and/or politically relevant variables.

This session invites papers addressing to settlement analysis, in which variability is taken as an asset, even when looking for the correlation of these sites. These questions will be addressed by the paper and hopefully discussed during the session.

In this paper, the relation between research, settlement and the socio-economy of the city is discussed with an example of Turku, which is the oldest town of the present-day Finland and was one of the most important towns of the medieval and early modern Sweden. The first presentations of the layout of the city are from the 1630s and stretched over 300 years of the establishment and settlement of the town. It took more than 100 years before a map was made in the 1750s with the list of the plot owners including information about their professions and site values.

Tracing the earlier settlement history and socio-economic topography of the town is like trying to compose comprehension about the picture by piecing an old puzzle with only a few pieces that have been spared. The information from the 17th century and beyond is valuable as such, but how much this information has labelled the conceptions and interpretations about the socio-topography of Turku in earlier periods and on what grounds? The city is a living organism and on what grounds is it most likely that such an approach allows for multiple perspectives when identifying socially, economically and/or politically relevant variables. This is most likely that such an approach allows for multiple perspectives when identifying socially, economically and/or politically relevant variables.

**TH3-14 Abstract 01**

**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 situations and population status. The same general form may correspond to different socio-economic situations. In this paper I will discuss settlements by taking variability as the starting point rather than pre-conceived concepts and models. Maps, tax registers and archaeological records from several parts of Scandinavia will be discussed with a focus on Western Sweden.

**TH3-14 Abstract 02**

**Areas reserved for rich and populated by poor or melange of many factors?**

**Author:** Dr. Seppälänen, Liisa, University of Turku, Turku, Finland (Presenting author)

**Keywords:** socio-topography, layout, Turku, early modern, urban settlement

**Presentation Preference:** Oral

Research, even if focused on the same topic, is relevant and has many variables, which may change in the course of time affecting approaches, methods and results in remarkable ways. In urban contexts in Finland, archaeological practises have 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.

**TH3-14 Abstract 04**

**Same name, same background, same function?**

**Similarities and differences of the Scandinavian Husebyer**

**Author:** Dr. Lemm, Thorsten, Stiftung Schleswig-Holsteinische Landesmuseen Schloss Gottorf, Schleswig, Germany (Presenting author)

**Keywords:** cultural-historical background, royal administration, royal farm

**Presentation Preference:** Oral

Since the early 20th century the more than 130 hamlets or farms in Scandinavia and the Orkneys known by the name Huseby, Huseby, Huseby, Huseby etc. have been a relevant topic in historical, archaeological and onomastical research, closely linked to the discussion of kingship and political administration. Es-cially the highly frequent use of the name Huseby, their uneven distribution over Scandinavia, and the use of huseby(a) as an appellative in some early written sources led to the understanding of a great majority of the Husebyer as places with a royal background. As such the Husebyer have in many cases been a substantial argument in theeses on the administrative and economic structure of royal power in the Viking Age and the early Medieval Period and in theories about the early state formations. However, recently conducted detailed analyses of their cultural-historical backgrounds give reason for a much more differentiated view on the Husebyer. There are certain similarities and differences that can be observed between these sites and there must be reasons for that. Were different historical and/or chronological backgrounds responsible for the diversity of the Husebyer? And how does this affect the widely accepted interpretation of these sites? These questions will be addressed by the paper and hopefully discussed during the session.
Did socio-economic developments change the landscape of Ireland?

Author: Tige, John, Trinity College Dublin, The University of Dublin, Castelar, 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 empires, 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 catalysys, 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 seems was a time of stagnant growth. The increase of crop cultivation, as well as the introduction of new technologies, such as the water-mill and the coulter plough, increased the 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 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 and livestock, the growth of crops and livestock being the main catalyst for the growth in the landscape.

In the first part of this presentation I outlined the socio-economic changes that occurred in Ireland in the early medieval period. In the second part I want to focus on the changes in morphology after this period, many being re-occupied in the later medieval period, its possible location echoed a change in their function, away from being a cattle- pen to being one used to control and exploit the agricultural producers. While some have attributed the inception of souterrains as refuges from Viking raiders, I would view them as drier storehouses for grain and livestock, the growth of crops and livestock being the main catalyst for the growth in the landscape.

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Keywords: agriculture, early medieval ireland, economic development

Presentation Preference - Oral

A Triadic Model of Settlement Analysis

Author: - Ebner, David, Free University, Berlin, Germany (Presenting author)

Keywords: Material, Socio-Economics and Outcome in the Medieval Baltic: A Triadic Model of Settlement Analysis

Presentation Preference - Oral

Did socio-economic developments change the landscape of Ireland?

One of the great challenges inherent in archaeology is the fact that what humans say, and what they do, are very often different things. In the same way, as similar material forms may correspond to different socio-economic phenomena, so may the reverse be true. Deterministic approaches to either as a direct informant of the other are not only reductive, they can more often than not be a logical impossibility. A holistic settlement analysis would be more adequately served by the introduction of a triadic model proposed by Fletcher, in which settlement success is measured not only by a relationship between material form and socio-economic situation, but also by the outcome of their relationships. The case study for this paper will be the initial urban development which took place in the Baltic region during the early medieval period. New and unusual settlements of very similar form, albeit varying emphases on elements such as ritual, royal power, politics and trade, appear across the landscape between the 7th and 9th centuries CE. This development comes ostensibly in response to the changes happening in Europe after the fall of the Roman Empire, and the establishment of new trade routes from the north 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.

Theoretical and methodological perspectives in archaeology

Presentation Preference - Oral

Keywords: material, socio-economics and outcome in the medieval baltic: a triadic model of settlement analysis

Keywords: Agriculture, Early Medieval Ireland, Economic Development

Presentation Preference - Oral

TH3-14 Abstract 08

Changes in crop and livestock management practices in the Kingdom of Granada

Author: Prof. Malpica Cuello, Antonio, Universidad de Granada, Granada, Spain (Presenting author)

Keywords: Depopulated villages, Rural Archaeology, Settlement pattern

Presentation Preference - Oral

Depopulated villages, Rural Archaeology, Settlement pattern

Presentation Preference - Oral

Consequently, there was a significant retrofitting in term of settlements pattern and territorial organization, to the point of generating a large number of depopulated villages. In the same vein, a rearrangement of populations and a growing process of urbanization and marginalization of the rural world is observed, which led to a virulent confrontation between old and new Christians.

Keywords: Depopulated villages, Rural Archaeology, Settlement pattern

TH3-14 Abstract 09

A multi-proxy approach on identifying stabilizing patterns in prehistoric times

Author: Ebner, David, Free University, Berlin, Germany (Presenting author)

Keywords: animal husbandry, spatial analysis, stabilizing

Presentation Preference - Oral

The identification of stable in prehistoric settlements often depends on exceptional preservation conditions or geochemical analysis of sediments. But is it possible to determine patterns of architeconic features, particular objects and landscape use leading in the same direction? This presentation is dedicated to a multi-proxy approach to establish a method enabling the identification of characteristic strategies of animal husbandry and stabilizing. The initial approach is based on excavation examples with extraordinary preservation conditions especially from the northern sea or lake sites with proof of existing or non-existing stabilizing features. But also settlements with inferior preservation can hold evidence of stabilizing that can be proven by various scientific methods. Finally, it will be tested whether it is possible to evolve these results on different settlement concepts and periods.
TH3-14 Abstract 10

Islands on lakes - life and rituals of Slavs in Pomerania during the pogan-christianity transition

Author: Prof. Chudzia, Wojciech, Nicolaus Copernicus University, Torun, Poland
Co-author(s): Dr. Kazimierczak, Ryszard, Nicolaus Copernicus University, Torun, Poland
Co-author(s): Prof. Makowiecki, Daniel, Nicolaus Copernicus University, Torun, Poland (Presenting author)
Keywords: Pomerania, Islands, Religion, Slavs
Presentation Preference: Oral

The baptism of Mieszko I, the founder of Polish state, in 966, had been, for the Slavs living in the Odra and Vistula basin, an important caesura between a pagan style of life and the new, Christian one. For a long time, among medievalists and archaeologists, the knowledge on this topic has been based on researched proto urban centers such as Szczecin, Wolin, Kołobrzeg and Gdańsk. So far, little attention has been paid to the centers located on the islands of Pomerania Lakeland. However, since 2004, in the Institute of Archaeology at Nicolaus Copernicus University in Toruń, a research on the significance of these islands in the socio-economic and religious life of Slavs in the times of ideological and political transformation at the end of the 1st and the beginning of the 2nd millennium A.D. has been undertaken. Currently, the research is being conducted in several such places. The Island of Żółte, located on the lake Zaratoko, belongs to the better examined ones. In the following paper, the authors will present the selected questions concerning the interpretations of this place according to the religious, social and economic contexts. The results of the interdisciplinary archaeological and bio-archaeological research will be the basis of their considerations.

TH3-14 Abstract 11

Spatio-Demographic Structure and Social Organization: A Linear Trajectory or Overlapping Trends?

Author: Zubrow, Ezra, SUNY at Buffalo, Buffalo Ny, United States of America (Presenting author)
Co-author(s): Dr. Dachkchenko, Oleksandr, 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 Cañadon Cachiqui river system in today’s Northern Argentina. Questions of relationism and encounters will be addressed, but in particular the relation between settlement organization and the socioeconomics. The potentials of the concept of mode of production, in a new revised version, will be tested.

TH3-14 Abstract 13

Society in flux: Evidence from the middle/late Northern Württembergian Urnfield Culture

Author: Girotto, Chiara, University of Durham, Durham, United Kingdom (Presenting author)
Keywords: Northern Württemberg, stratification, Urnfield Culture
Presentation Preference: Poster

Up to date the society of the Untermain-Swabian-group of the middle/late Urnfield Culture has never been analysed by a combined approach of the spatial and temporal distribution of settlement, hoards, burial patterns (n=701 sites including isolated objects) and grave goods. This case study of Northern Württemberg introduces a new idea about of structure and organisation of society at Ha A2/B1. Furthermore it briefly presents a previously unpublished cemetery of the transitional Ha A2/B1 period at Erlenbach “Käppelesäcker” (district Heilbronn, Germany). Settlement patterns suggest a society whose patterns followed natural resources while 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 - Basset, Anouk, University of Glasgow, Glasgow, United Kingdom (Presenting author)
Keywords: carved stones, Christianity, movement
Presentation Preference: Oral

Comparing early Christian stone monuments in north-western Europe: movement and identity

Comparing early Christian stone monuments in north-western Europe: movement and identity

Author - Basset, Anouk, University of Glasgow, Glasgow, United Kingdom (Presenting author)
Keywords: carved stones, Christianity, movement
Presentation Preference: Oral

Stone monuments have been used by people for many centuries; as a medium for expressing messages and ideas; 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 used as a prominent part in the process, by embodying and expressing Christianity as part of identities chosen by elites, and to convey a message of power in the landscape. Both secular and religious elites from north-western Europe commissioned and erected stone monuments in the landscape for a variety of reasons: for example, as a memorial practice, or to convey a message of power over both the people and the landscapes they experienced, inhabited, traversed, and assembled in throughout their lives. The widespread nature of the erection of stone monuments thus lends itself particularly well to a comparative study. By situating these monuments within a macro-scale approach and placing them in a wider context, the individuality of stones is reduced, 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 in 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 - Orsini, Celia, Greenwich, 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 Britirh neighbours, and across the Atlantic Arc and North-eastern 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 (AD1-500)

Author - Dr. Wilson, Jacqueline, University of Bristol, Bristol, United Kingdom (Presenting author)
Keywords: Ireland, Romans
Presentation Preference: Oral

In the past various interpretations have been used to explain the evidence of Roman material in Ireland, the likely impact of external cultural influences and the probable adoption and take-up of a shared value system in parts of Ireland in the late Iron Age (AD1-500). The most recently published research used multiple lines of investigation and 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 via media - frees the author from the prior constraints that limited wider theoretical discourse. In developing an alternative perspective, we can now move forward from the outdated dichotomies that placed Roman and native (or in this case Irish locals) into a state of perpetual opposition. This paper will use local and regional spatial similarities between settlements and society in both Roman Britain and Roman Ireland, and demonstrate where these overlap and are connected over time. Prior investigations by the author using new AMS dates and strontium and oxygen isotope analysis on burials previously classified as ’intrusive’ in this period have demonstrated that some of these burials date to the Late Iron Age/Roman period and that for some their origin and early childhood was spent in Roman Britain. The focus of the discussion will be on how identities were being recreated in Ireland through the use of Roman-type objects for bodily adornment and how this would have impacted on the sense of self for the individual but also wider community relations. It will also explore how and why people appear to have adopted or emulated Roman ritual practices at key sites around Ireland. In presenting a comparative analysis with other societies engaging with the Roman administration but outside formal control and territory, temporal and geographical indicators will be explored to
demonstrate transition over time. It will highlight how at key historic centres in Ireland early Roman influences became embedded into a syncretic Romano-Irish ritual practice, which in time paved the way for the adoption of Christianity in Ireland.

**TH3-15 Abstract 05**

**Europe of the Regions? Sailing between Scylla and Charybdis on Europe’s Atlantic Arc**

Author - Ó Ragain, Russell, University of Cambridge, Heidelberg, Germany (Presenting author)

Keywords: Early medieval Europe, Multiscalar perspectives, Theoretical archaeology

Presentation Preference - Oral

This paper will explore the epistemological and ontological validity of taking the various territories along Europe’s Atlantic seaboard as an area of study in the first millennium AD. It draws on some of the insights gained thus from an on-going wider collaborative research project on the Atlantic Arc in the first millennium AD with Patrick Gleeson, University of Newcastle, and Álvaro Carvajal Castro, University College Dublin. In keeping with the overall theme of the session, an attempt will be made to steer a course between various extremes usually portrayed as a series of binary oppositions, as evinced in the various particularist/generalist, -emic/-etic, structure/agency, micro-/macro- and exceptionalist/universalist debates across the social sciences, archaeology included. Different poles have attracted varying numbers of adherents in recent decades, as archaeology – and indeed the social sciences in general - lurched from one paradigm to the next. It is argued here that there is no single way of thinking about historical problematics our current (purportedly) epistemologically-anarchic academic milieu. None of these oppositions are as stark as might often be implied, rather they occupy the extreme ends of various spectra, more related to issues such as the spatial, temporal and/or evidential parameters of a scholar’s area of study, or to individual bias. The death of the grand narrative was proclaimed more than three decades ago, however, very little has been offered up as an alternative for scholars interested in change over time and/or on broad geographical scales.

Using the Atlantic Arc as a broader test-case, and more specifically my own multidisciplinary research on settlement in Ireland, Scotland, England and Norway within this wider area, a via media is proposed here. This ‘middle road’, adopted from post-structuralism, might be best termed might the ‘aggregate narrative’, a mediating, empirically-grounded collaborative approach, which brings together the work of several scholars working on smaller spatiotemporal scales or utilising different categories of evidence. This helps mitigate not only against the issues inherent in macro-level generalist approaches, but also those associated with over-adherence to the sorts of micro-level, particularist and exceptionalist approaches associated with the national archaeologies of various regions of Europe. It also helps mitigate against issues such as the relationship between nationalism/regionism and archaeology on the one hand, and on the other, the epistemological dissonance brought about by the use of different systems of classification.

**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, Fino-Ugric, Germanic cultures and the rest of Europe; the impact on formation of medieval Lithuanian, Russian, Polish, German, and Swedish states will be discussed in this Theme.

This Theme is dedicated to Maria Gimbutas (1921-1994), the world-renowned Lithuanian scholar who contributed immensely to the studies of the Balts as a part of the wider Indo-European phenomenon of the "Old Europe". 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.

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".

In this Theme, we will focus on the development of hillforts/strongholds in the territory of the Baltic region from the Early Metal Age/Bronze 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.

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**TH4-02 Abstract 01**
The continuity of hillforts in long-term perspective: a case study from south-eastern Estonia

**Author** - Dr. Vaik, Heiki, University of Tartu, Tartu, Estonia (Presenting author)

**Keywords**: chronology, hillforts, long-term perspective

**Presentation Preference** - Oral

Hillforts have often been regarded just in the context of some definite time period – as power centres and important centres of the settlement pattern. However, not much attention has been paid to the network of hillforts as a phenomenon from a long-term perspective. The paper sheds light upon the question on the basis of a case study concerning the hillforts of south-eastern Estonia: problem-based small-scale excavations with the aim to establish the chronology of sites were carried out on 31 hillforts, i.e. on almost all the sites, in 2015-2017.

Until the late 20th century it seemed quite clear that hillforts emerged in south-eastern Estonia only since the beginning of the Viking Age. Archaeological excavations, both radiocarbon dates and finds, have, however, fully disproved the suggested model. It appears that hillforts emerged in the pre-Roman Iron Age already and were used in different time periods. However, the network of sites has greatly changed in the course of time. Many of the sites, especially those of the Early Iron Age, were of short-time use, sometimes also re-used. Only in a few cases the site was used over a long time period. The case of south-eastern Estonia enables one to suggest that dates and chronology of hillforts, based on only external features, and not proved by results of archaeological excavations, may be most misleading.

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**TH4-02 Abstract 02**
The evolution of hillforts in Lithuania according the C14 data

**Author** - Ass. prof. Zabiela, Gintautas, Klaipeda university, Klaipeda, Lithuania (Presenting author)

**Keywords**: C14 data, hillforts

**Presentation Preference** - Oral

About 200 hillforts (from about 900 known) were investigated in Lithuania until 2015. According to the data, not all of these excavations, was made the general evolution of hillforts. The main stages of development of fortifications were designed in basis of typological dating of archaeological artefacts. Until the last decade of this century the C14 data in Lithuania were made seldom
and 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. Messal, Sebastian, German Archaeological Institute, Berlin, Germany (Presenting author)
Co-author(s): Dr. Ibsen, Timo, ZBSA, Schleswig, Germany
Institute of Baltic Region History and Archaeology, Klaipeda, Lithuania
Keywords: Baltic Hillforts, Geophysics, Noninvasive methods
Presentation Preference - Oral

Since 2010 several archaeological sites have been geomagnetically surveyed in Lithuania. In this framework of this cooperation also several hillforts (Taurapilis, Optainiai/Vilkyškiai, Jakai) have been investigated. In almost all sites features and structures could be detected that enables some initial statements on the structure and dimensions of the archaeological monuments. For some sites the surveys also provided very precise and hillforts unknown information about the settlement context like in Taurapilis and Optainiai/Vilkyškiai (fortification ditches) or Jakai/Sudmartai (stone wall fortification). These results clearly show the potential of noninvasive, especially geomagnetic methods for archaeological purposes; not just for archaeological research, but also for cultural heritage management. The geomagnetic data can be used differently as basis for specific archaeological investigations – which have for example already been conducted in Taurapilis – and for the development of future concepts and strategies for the protection and preservation of these sites. The paper focus on the most exciting results of these surveys which will be presented and discussed during the talk.

TH4-02 Abstract 04
Signals of subsistence economy as revealed by pollen data: a case study from Lithuanian hillforts

Author: Dr. Stancikaite, Migle, Nature Research Centre, Vilnius, Lithuania (Presenting author)
Keywords: hillforts, Lithuania, pollen data
Presentation Preference - Oral

Recently pollen investigations were conducted in the territory of Impiltis (Late Iron Age - the Middle Ages), Skomantai (Early Iron Age-Migration Period and the mid-13th-c mid-14th-c AD), Juodyns (the early Iron Age – the Early Middle Ages) and Petronai (1st-3rd century AD – Historical times) hillforts or in the closest vicinities of mentioned monuments. The presentation deals with two strongholds located in Zamland close to the coast of Baltic Sea near to each other. Test excavation of ramparts and ditches showed not very complicated stratigraphy. Hand made pottery of Prussian type were found at the bottom of the ditch. Radiocarbon dates 8000-10000 BP were found in the floodplain of the creek near the hillfort. Pollen analysis allows us to reconstruct the local environmental conditions at the boundary of the Peatmoor and Holocene: the gradual transformation of a shallow freshwater reservoir in the marsh and than in the fen, while pine forests dominate the surrounding landscapes.

TH4-02 Abstract 05
The environment of the Sambia hillforts according to the pollen studies

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 paleoecological 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 IA RAS (2005, 2010-2013) in the area of the village of Kuikovo (Knitgen) 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 the general vegetation changes of the North of the Sambian Peninsula over the past 2,000 years. It is shown that prior to the intensive agricultural development, coniferous-deciduous forests with spruce, pine, oak, linden, hornbeam, elm were widespread, along with black alder forests in the lowlands. The mass extirpation 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.

TH4-02 Abstract 07
Drilling the past - New approaches in dating hillforts in the Baltic region

Author: Dr. Ibsen, Timo, ZBSA, Schleswig, Germany (Presenting author)
Keywords: C14 dating, hillforts, Kaliningrad Region
Presentation Preference - Oral

Though most of the more than 2500 hillforts in the Baltic Region are mapped and discussed on a military-strategic background since the beginning of the archaeological research in the 19th century the number of intensively investigated monuments until now is surprisingly low. Especially the northern part of former East Prussia, nowadays as Kaliningradskaya Oblast a part of the Russian Federation, shows a significant lack of data. For instance, for the Sambia peninsula we know 90 hillforts, from which only 22 have been examined by surveys and only 7 have been partly excavated. In addition only a few excavation results have been comprehensively published. In particular, the dating of the monuments is mostly based on theoretical considerations and studies of written sources of the Teutonic order, which only 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 Scandinavian Archaeology in Schleswig and the Museum of Prehistory and Early History in Berlin and financed by the Academy of Sciences and Literature Mainz, the author developed a new strategy for the dating of hillforts. Using a motor driven drilling equipment for sampling datable material, especially carbon for Radio-Carbon-analysis, the ramarts 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.

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TH4-02 Abstract 08
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 “Didysis” hillfort is presented as a case study with spatial analysis of household and technical ceramics, bone arrowheads and spearheads, and metal finds. Results suggest abandonments of the northern building with the concentrated sharks’ 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 Aisva, Rīdaļa and Krūkštals hillforts. In addition, distribution of early hillforts and early metallurgy in the East Baltic region and its chronological character are analyzed.

Typologically most of the earliest finds from the hillforts are attributed to PNVI, with exception to the bone pins with nail-shaped head and Majdów type bronze pin that indicate a possible end of PII. Casting moulds for socketed axes from Narkūnai, Gauja, Siauliai, Nida, Krūkštals and Brikūnai hillforts, and casting moulds for spearheads from Aisva, Brikūnai and Krūkštals hillforts are one of the earliest evidences, dated to PNVI, of locally executed metallurgy in East Baltic region. The histographic/chronological classic route of Daugava river seems to attract most of the early metalworkers. Casting moulds for Mālar-type socketed axes are an indication of the successive metallurgical activities in the hillforts. The latter casting moulds, like the rest of the technical ceramics of Majków type, are scarce, with similar amounts in Narkūnai and Krūkštals and one newly found in the National Museum of Lithuania from Garmai hillfort. However, the Mālar-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 Mālar-type bronze axes had been cast on two different occasions, therefore making some ground for the itinerant metalworkers’ hypothesis. The aim of the paper is to reconsider the emergence and character of early hillforts in the East Baltic region correlating the spatial analysis of bone, ceramic, and metal artifacts, and the emergence of locally executed metallurgy as a relatable process.

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TH4-02 Abstract 09
Late Bronze Age hillforts in Pomerania: an overlooked problem

Author: Niedźwiedź, Kami, 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 from the Western part of the South Baltic Region down to the River Oder region in Pomerania, basse Lower Oder region. This section is surprising, especially taking into account relatively numerous appearances of hillforts in Great Poland that is a region directly neighbouring with Pomerania from the south. On the other hand, investigations conducted in the 1960s to verify Pomeranian hillforts described as originating from Early Medieval and Medieval Period resulted in detecting at least at a dozen sites with materials from the latter Bronze Age.

The aim of this paper is to introduce the problem of alleged presence of Lusatian hillfort culture in the central part of Polish Pomerania. It is highly probable that this kind of settlements played an important role in interregional contacts between Eastern and Western parts of Pomerania, together with Great Poland. In wider perspective their role in the course and working of the Amber route at the end of the Bronze Age should also be taken into account and investigated. It seems that new tools available for archaeologists like GIS software and LIDAR data may bring a new opening and new perspectives in researching this case study.

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TH4-02 Abstract 10
Moving forward in the understanding of medieval ring-forts in Central Poland, Rozprze case study

Author: Dr. Słowińska, Jerzy, Institute of Archaeology University of Lodz, Lodz, Poland (Presenting author)

Co-author(s): Dr. Król, Piotr, Department of Geomorphology and Paleoecography, Faculty of Geological Science, Lodz, Poland

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 last years it’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 geoeahronological methods were undertaken. Multiple methods such as magnetic gradiometry, earth resistance, aerial prospection, photogeological methods and other methods for dating新材料 were employed. The multi-methodological approach was confirmed to be successful at Rozprze, reveal unknown second, smaller ring-fort in Stare Bloków. Traces of open settlements were also detected in the close vicinity of the strongholds. In each case the applied methodology helped to specify environmental determinants of settlement's situation. The studies in Rozprze (ca. 60 km south from Łódź) were a prime example of new data categories that non-invasive approaches bring forth. Fieldwork was excavated in 1990s 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 Łucjanka and Rajaska river in the central part of valley floor, but on the Pleistocene alluvial terraces 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 palaeo-environmental research. It helped to detect the presence of a developed system of moats and ramparts which appeared to be a palimpsest composed mainly of elementary elements of a late medieval motte and bailey residence, which replaced an older, early medieval settlement.

Acknowledgements. This research project was financed by fone-year grants from The Ministry of Culture and National Heritage No. 01615/13/PPN/ND (2013), 496214/PPN/ND (2014), 496214/PPN/ND (2015) and by a grant from the National Science Centre based on the decision No. DEC-2013/11/B/H53/03785 (2014-2017).

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TH4-02 Abstract 11
Is Hollenstedt the Carolingian Holdunsteti from 804 AD?

New contributions to an old controversy

Author: Dr. Schneeweiss, Jens, Institute for the History of Material Culture RAS, Saint Petersburg, Russian Federation (Presenting author)

Co-author(s): Dr. Brandt, Jochen, Archäologisches Museum Hamburg/Helmsmuseum, Hamburg, Germany

Presentation Preference: Oral

The stronghold „Alte Burg“ near the village of Hollenstedt is an Early Medieval fortification, which was long interpreted as the place where Charlemagne met representatives of the Danish king Godofrid in AD 804. It was partly destroyed and then excavated in the late 1960s and 1970s. Since that time there is no consensus about the dating and the related interpretation of the site, which is ranging between the early 8th and 10th c. AD. This question is of major importance not only for the history 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 geoechnological data provided new data that are presented in the paper. They prove the erection of the fortification not earlier than in the late 9th c. AD. Moreover, the data require a re-interpretation of the whole situation, described with the passage … in loco, qui dicitur Holdunsteti“ in the Royal Frankish Annals in 804 AD.
Spatial analysis of the system of fortifications of the Iron Age hillforts Dyakovo culture

**Author:** Chaukin, Sergey, Institute of Archaeology Russian Academy of Sciences, Moscow, Russian Federation (Presenting author)

**Keywords:** Hillforts, iron age, spatial analysis

**Presentation Preference:** Poster

The study deals with the sites of the early Iron Age in the area between the Oka and Volga (East European Plain). This area was inhabited by tribes of the so-called Dyakovo culture. The remains of the fortifications of these settlements are the ramparts and ditches located on the residential area and the perimeter of the scarp - construction settlements on the slopes. Number of lines of fortifications on each settlement varies. Usually it is 1-3 shaft and ditch. With the help of GIS analysis to determine the spatial patterns of the fortifications on the location of the ancient city. This study is to determine the functionality of the ramparts and moats, define local cultural centers. The research considered the organization of space in the settlements Dyakovo culture from the 8th century BC to the 7th century AD. The beginning of D'yakovo culture hill-forts dated to the end of sub-boreal climatic period which is characterized by climate cooling, compared with the previous, and the change of deciduous forests with fir. This period continuous to 500's BC and covers the first phase of life in the hill-fort. Next climatic period Subatlantic characterized by even more cooling and moistening climate. It is falls on top of the second and third stages of life on the hill-forts. All settlements were divided into three layers corresponding chronological periodization. Stage 1 - 8th century BC - 6th century BC; stage 2 - 5th century BC - 2nd century BC; stage 3 – 1st century – 7th century AD.
There are over a thousand cairns on Gotland that has been discussed as burial sites belonging to the Bronze Age time and around 200 of these have monumental dimensions, ranging from 20 to 50 meter in diameter and 2.5-7 meter high. Only a few of these structures have been partly excavated and only one has so far been totally excavated with archaeological scientifically methods. These cairns have so far only been discussed as burial sites but due to our recent archaeological excavations in relation to three of the largest cairn environments on Gotland (Oggårdarjärn, Djaparjärn and Hägårjärn) and re-examination of the material excavated at Kau pasture new knowledge about these places has been generated. Our investigations show that these monuments go beyond the function as only burial sites. This paper present a new approach to analyse and discuss the ritual practices indicated by our recent excavation at these sites that allow us to understand them both as burial and ritual sites in a changing physical and cultural environment during several thousand years.

TH4-04 Abstract 03
Patterns or randomness? Contextualising Estonian Bronze Age bronze stray finds on the landscape
Author - Paelow, Kristina, University of Tartu, Tartu, Estonia (Presenting author)
Presentation Preference - Oral

From Estonia, most large Bronze Age (1800–500 BC) metal items such as axes and spearheads have been found from non-settlement, non-burial context as single stray finds. In contrast, bronze finds from settlements and burial sites are small and of personal nature - tweezers, razors or clothing-related items such as buttons. The connection of stray bronze finds with coeval settlement sites has been assumed on a few occasions. A couple of items have been associated with possible deposition in water bodies. The possibility of these stray finds being deliberate depositions on the landscape, as identified in large parts of Europe, including the Baltics, has until now been systematically unexplored. This phenomenon has been interpreted from different perspectives: sacrifice, conspicuous consumption, mundane self-saving, memory practice and the removal of valuables or objects with powerful life-histories from circulation. Seeking patterns in Estonian material required characterising the original deposition environments of individual find locations. To do so, I combined archive materials, topography, shore displacement data and information on soil properties. The results point to observables patterns in artefact distribution, with a preference for water bodies, wetlands and slopes. This implies not random losses, but willed deposition activity.

TH4-04 Abstract 04
Digital re-construction of a Bronze Age stone wall enclosure and the landscape at Lina Mire, Gotland
Author - Associate Prof. Wallin, Paul, Uppsala Universitet, Visby, Sweden (Presenting author)
Co-author(s) - Martinsson-Wallin, Helene, Uppsala Universitet, Visby, Sweden
Co-author(s) - Wahlin, Joakim, Dalarnas Museum, Falkenberg, Sweden
Co-author(s) - Sandelin, Anders, Sandelin Animation, Stockholm, Sweden
Keywords: Bronze Age, Reconstruction, Wall enclosure
Presentation Preference - Oral

The aim of the project was to digitally re-construct the stone wall enclosure at Gothemschammar and to understand its location in the surrounding landscape. Excavations into the feature uncovered its internal construction details, as well as, dateable materials from domestic animals and charcoal. Fifteen AMS dates gave a clear and somewhat unexpected age of the structure to the mid Bronze Age ca. 900-700 BC. The northern end of the wall is to be found at the end of a steep cliff, and since the southern end of the wall ended in an open slightly slanting terrain it suggested that it might have ended at the sea level when built to demarcate a point in the landscape. We therefore reconstructed the water level using LiDAR data indicating that the former sea level at mid Bronze Age could be set at about 10 m above the current sea level in this area. To place the wall enclosure in its Bronze Age context we also plotted other features tied to the same time, such as stone ship settings, cairns, other wall enclosures, and known hoards into the re-constructed landscape. It then became quite evident that points, small islands, and the coastal locations was of great importance for the location of these monuments and that the sea mire must have been an important ‘port’ for Bronze age communications, internal as well as external, and Gothemschammar was strategically located at the entrance of this water system.

TH4-04 Abstract 05
Between Social Dynamics and Cultural Constancy, Case Study of the Trzciniec Culture
Author - PhD student, Agne, Zilinskas, Vilnius University, Vilnius, Lithuania (Presenting author)
Keywords: Bronze Age, pottery, Trzciniec Culture
Presentation Preference - Oral

The appearance of the Trzciniec Culture (Trzciniec Cultural Cycle) in Lithuania and its role in the formation process of Bronze Age cultures is still a controversial question at the present stage of research. The investigation of this culture started only a few decades ago even though Trzciniec culture artefacts have been known in Lithuania for a long time. The archaeological material of this culture is known from almost 20 sites in current Lithuanian territory. Individual pots, clusters of potsherds and artefacts are usually found on these long-term lived sites. The ornamental motifs on the pottery in all the groups of Trzciniec Culture are the most important criterion for identification. However, the conspicuous influence of neighboring simultaneous cultures can be seen in this pottery. It's background was no doubt Globular Amphora and Corded Ware Cultures with influences of the Narev and Nemunas Cultures in Lithuania.

There are more individual sites which scattered over the northern area far from the main Trzciniec Culture territory (Lithuania, Latvia, Kalingrad district). One may reasonably ask how these finds should be evaluated as ‘islands’ of Trzciniec culture (1), as a reason to include Lithuania in the Trzciniec culture’s range (2) or as the result of the influence or penetration of cultures linked to this culture (3).

Therefore, the Trzciniec culture in Lithuania’s territory could be treated as one of the most influential phenomena of the Middle Bronze Age. This paper analyses various aspects of the concept and chronology of the culture and presents a history of the research in the culture’s territory. Priority is given to archaeological pottery, the main indicator for cultural identification. In addition, this paper analyses the Bronze Age cultural situation in the Eastern Baltic region and raises the question of whether the Trzciniec culture existed in Lithuania and in what form.

TH4-04 Abstract 06
Coastal and northern Lithuania in the Late Bronze Age - communication networks and interactions
Author - Assoc. prof. Merkevičius, Algimantas, Vilnius University, Vilnius, Lithuania (Presenting author)
Keywords: Bronze Age, cultural contacts, materiality
Presentation Preference - Oral

The Late Bronze Age, from around 1200 BC, was a time of significant cultural changes in Lithuania and in the whole Eastern Baltic Region, especially in the coastal zone and around Daugava River. A new culture elements, such as some type of graves, pre-Celtic fields, cup-marked stones, stone enclosures, metal artefacts (Mair type axes, miniature daggers and others) shows contacts and interactions in the Baltic Sea Region. Some of new culture elements are the result of external influences from coastal zones of the western and southern Baltics. Distribution of new type of sites and artefacts suggests communication networks in the Baltic Sea Region. One of the trade route was established at the beginning of the first millennium BC and functioned between central Sweden, Gotland, east Baltic Region (Daugava route) and northeast Russia in the first half of the first millennium BC.

The aim of the paper is to discuss communication networks and nature and scale of interactions in the Baltic Sea Region in the Late Bronze Age.

TH4-04 Abstract 07
Materialised and non-materialised contacts in Bronze-Age Eastern Baltic
Author - Professor Lang, Valter, University of Tartu, Tartu, Estonia (Presenting author)
Keywords: Bronze Age, Finno-Baltic contacts, long-distance contacts
Presentation Preference - Oral

Archaeology as an academic discipline studying material culture can easily follow contacts between people from different regions if some evidence has been left behind - usually something material which can be studied by scientific means. There are numerous examples of bronze artefacts found, for instance, in what is today Estonia that demonstrate long-distance contacts with the mid-Volga region, the Caucasus, Scandinavia, etc. We know about these contacts but there is no doubt that each item of foreign origin must be carefully studied in order to avoid the trap of a novice detective - everything that seems evident at first sight need not be true. The presentation will discuss several artefacts with the purpose of analysing the probable nature of contacts that yielded those items.
It seems rather plausible that the fortifications, iron (battle) axes, and shepherd’s crook pins reflect different aspects of the same process, which most likely involved troubled times and even some military impact. It is likely that some groups of invaders of Indo-Iranian or Balto-Slavic origin may have infiltrated into the Finnic population during this process.

TH4-04 Abstract 10
Crown Torque from Jamlitz
Author: Vorontsikaya, Larissa, The State Hermitage Museum, St.Petersburg, Russian Federation (Presenting author)
Keywords: Germany, Kronenhalsringe, spectral analysis
Presentation Preference: Poster
The State Hermitage keeps the crown torque from Jamlitz, Lkr. Beeskow, north-eastern Germany. It had been found by accident while plowing a field, then bought in 1925, and subsequently kept by the Berlin Museum (Staatliche Museen zu Berlin Ni II 10965).
Today, the torque is one of the so-called Kronenhalsringe, mainly found in Denmark and Northern Germany. The few findings of such crown torques are known to have been made in Poland, Romania and Ukraine. An accumulation of at least seven items was discovered in the area of Leski and Grabyja villages in Podolensky, Chernivtsi region. Nearly in all cases, the findings were made in swampy areas and were apparently of votive nature. Apparently, these items belong to the German Jastorf Culture that existed in Northern Germany and Denmark. In Eastern Europe, such findings are probably due to the relocation of the Germans to the east.
The Jamlitz crown torque is type IV according to Jochen Brandt's classification and probably dates back to Step C1 according to M. Schuhknecht (i.e. the last quarter of the 3rd century BC – first half of the 2nd century BC). According to Björn Rauchfuss, the torque belongs to shape 2. Crown torques with an oval, almost quadrangular cross-section.
Parts of the Jamlitz torque and the pivot pin were cast from wax models. The hole for the pin was made in the wax model and subsequently refined on castings. The casting was followed by further finishing. Obviously, this torque was originally defective, since the lock does not close, and parts of the lock are poorly fit to each other. The torque opens up and cannot be used for its designated purpose. This is characteristic of the Jamlitz torque. Similar items from Podolensky 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 Zaleje (Ternopol Region, Ukraine), Lichtenstedt (Pavlovsk, 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 09
Mid-Pre-Roman military impact on the northern eastern Baltic
Author: Professor Lang, Walter, University of Tartu, Tartu, Estonia (Presenting author)
Keywords: foreign impact in East Baltic, fortifications, Pre-Roman Iron Age
Presentation Preference: Oral
During the years 201-2015 of field studies both ground-penetrating radar and arial photographing with a drone were tested. Documenting of the camps was mostly done with laser scanning technique. This is the largest 3D-documentation Early Roman Iron Age site in Finland.
The site was 3.5 hectares and it was surveyed in several phases. New camps 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 camps. Based on this the total amount of camps 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 sherds was found. This has been interpreted as a part of a settlement site. In this area also pieces of burned bone were excavated. From them bones of fish, seal and one bone from either a sheep or a goat were identified. Macrofasial 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 near a camp located at the highest outcrop of rock in the area. The camp was covered with red sandstone slabs. There was also another camp which was covered with sandstone slabs in the area but it revealed no finds.
The iron bracelets are a very rare find from an Early Roman Iron Age site in Finland and they suggest connections to the Baltic region.
Tarand graves spread in Estonia and around the Baltic Sea during Early Iron Age (500 BC – AD 450). This grave type was the most preferred one during a long time in the area of nowadays Estonia. The overall type of grave changed only slightly during these centuries, but the exact construction and contents of the grave varied regionally as well as temporally. Nevertheless, aside the differences, there are numerous similarities that allow the researchers to group the graves and see their evolution through time and both internal and external influences of the Early Iron Age society.

The poster will concentrate on a handful of case studies of Pre-Roman Age tarand graves and intends to map the influences and trends that have lead the mourners to build these monuments, bury their dead either cremated or inhumed, and to choose and place the items suitable for the grave.

**Keywords:** burial rituals, Pre-Roman Iron Age.

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**TH4-05 Abstract 02**

**Extraordinary in Life – the Hoby Settlement**

**Author:** Curator Klingenberg, Susanne, National Museum of Denmark, Copenhagen, Denmark (Presenting author)

**Keywords:** Activity area, Settlement structure

**Presentation Preference:** Oral

A richly furnished inhumation grave dating from the Early Roman Iron Age was discovered in 1920 at Hoby, Western Lolland, Denmark. The extraordinary ensemble of grave goods encompasses tableware and a drinking set of Italian origin, two unique silver beakers showing scenes from Homer’s Iliad and Germanic items made of bronze and precious metal. Another find from a comparable property is a bronze vessel dated to the final part of the Pre-Roman Iron Age which was submitted in 1887 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.

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**TH4-04 Abstract 12**

**Pre-Roman Age tarand graves - trends and specialities**

**Author:** M. Kivirüüt, Anu, University of Tartu, Tartu, Estonia (Presenting author)

**Co-author(s):** Olh, 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.

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**TH4-05**

**SKETCHES OF FIRST MILLENIUM RURAL COMMUNITIES: INTEGRATING DWELLING SPACES AND THE DEAD**

**Author:** Simaika-Straimaliene, Andra, Lithuanian History Institute, Vilnius, Lithuania

**Co-author(s):** Blankenfeldt, Ruth, Zentrum für Baltische und Skandinavische Archäologie, Schleswig, Germany

**Keywords:** cross-examination, first millennium AD, rural communities

**Presentation Preference:** Regular session

Modern perceptions of local communities define them as groups of people which share common spaces, experiences and interests, and which are connected emotionally. It is, however, far more difficult to identify such communities in the archaeological record which cannot be perceived as a direct reflection of lifestyles, ethnicity, or social life. Our knowledge of local prehistoric communities has been based mostly on one-sided archaeological sources, either burial sites or dwelling sites, and both of these usually have escaped cross-examination to reveal a more comprehensive perception of communities.

Dwelling spaces and burial sites are like two ends of a single axis – their links and some sort of tension between activities in both places with their different functions transformed not only landscape but also relations between the inhabitants of a given region. In terms of archaeological research, the whole landscape integrating settlement sites, burial places as well as road networks, offering sites, hillforts and other activity areas is the key to understanding how local communities functioned. Therefore, even in the case of well known material, it is worth taking a fresh look at “material of the dead” in the light of its connections with living communities. While studying settlement sites one may approach the landscape of the dead directly or indirectly.

Therefore, we expect presentations that consider the fundamental features of local communities of 1st millennium AD across the Baltic and adjacent regions integrating cross-examination of data from different sources including settlement sites, burial places and other landscape features; population sizes; catchment area, settlement patterns, how local communities identified themselves and changed their identity; whether extraordinary rich people lived on extraordinary settlements, how the living communicated with the dead, and what role ancestral cults played in the formation of cultural landscapes, and so forth.

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**TH4-05 Abstract 01**

**Extraordinary in death – the Hoby graves**

**Author:** Dr. Blankenfeldt, Ruth, Zentrum für Baltische und Skandinavische Archäologie, Schleswig, Germany (Presenting author)

**Keywords:** High status graves, Local communities, Settlement

**Presentation Preference:** Oral

A richly furnished inhumation grave dating from the Early Roman Iron Age was discovered in 1920 at Hoby, Western Lolland, Denmark. The extraordinary ensemble of grave goods encompasses tableware and a drinking set of Italian origin, two unique silver beakers showing scenes from Homer’s Iliad and Germanic items made of bronze and precious metal. Another find from a comparable property is a bronze vessel dated to the final part of the Pre-Roman Iron Age which was submitted in 1887 to the National Museum. Inside the vessel lay burnt bones and parts of an iron scabbard. It turned up during gravel extraction but unfortunately the exact find site is not recorded in the archives.

The preparation and equipping of a grave happened according to certain patterns and standards – especially in such an outstanding case like the famous Hoby grave. An analysis of such burials is therefore closely linked to cultural and social as well as individual dimension of the deceased and the interring community. Hints to simple graves or a burial site from the Old Roman Iron Age are still lacking in the area around Hoby. However a contemporary settlement site has been located in close proximity to the grave. Thus a good basis is created to investigate the social and structural connection between an unusual grave complex and a nearby settlement.
In Holy on Lolland, a chieftain's grave from the Early Roman Iron Age was found in 1920. The grave is one of the richest dating back to this period from Northern Europe. In 1999, pottery and black soil were observed in the area NW of this rich grave, and more finds have been discovered in the years. The grave revealed a settlement from the same period as the richer graves in the area. In the period from 2010 to 2015, larger excavations have been carried out in the settlement and activity area. These investigations have been carried out in collaboration between the Museum Lolland-Falster, Center for Baltic and Scandinavian Archaeology (ZBSA), and the National Museum.

The settlement and activity area cover an area about 100x150 meters (328x492 feet), and about a third of this area has been excavated up until now. On larger parts of the Holy settlement, culture layer is preserved in a thickness of up to 0.6 meters (1.9 feet). It contains large amount of pottery and preserved animal bones besides the remains of clay floors. The preliminary studies show that the building at Holy represents a 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 mazes and walls. 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, economic and cultural perspectives will be presented. Finally, the results are compared to some of the contemporary settlements from current Danish territory.

TH4-05 Abstract 05
An attempt to define ratio of barrow cemetery and settlement site in term of community size

Author: Dr. Strimatiene, Andra, Lithuanian History Institute, Vilnius, Lithuania (Presenting author)
Keywords: barrow cemetery, rural communities, settlement site
Presentation Preference: Oral

The material culture of the Iron Age represented by the artefacts coming from burial monuments is relatively well known for the archaeologists; however, information on the local communities which left this legacy is rather scarce. One of the main characteristics describing any human community is its size. Usually, the size of the community is identified on the basis of the data derived from the burial monuments. However, there are other methods of establishing the size of the community on the micro-level, as well: for instance, they include area estimates or dwelling-based estimates. In ideal cases, data derived from different sites forming archaeological complexes should be correlated for the demographical analysis.

The region of eastern Lithuania is an area with very frequent occurrence of barrow cemeteries of different size, ranging from one to tens and hundreds of mounds, which suggests (apart from being 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 by an artifact found inside or going into the natural soil. In such cases, chronological and relative size of 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 context of Eastern European Barrow Culture and one relatively well preserved and excavated complex was chosen for the further case study. Analytical tasks were as follows: 1) to define the possible extent of the settlement site by combining tradition archaeological methods with geo-archaeological research data and micro-topography; 2) to assess the resultant area against the density coefficient, deriving this coefficient: a) from the data of excavated area, b) from the data of excavated area documented by geophysical surveys, which are the results of contemporary widely excavated settlements with well-defined structural pattern from neighbouring countries.

TH4-05 Abstract 06
Relation or isolation? Spaces of the living and the dead in the Iron Age East Lithuania

Author: Dr. Kurila, 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 archaeological, 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 microregional level aimed at complexes of hillforts and barrow cemeteries. Rather rare instances of barrow cemeteries being located near hillforts have suggested a stereotype that spatial distributions of both types of the sites are rather independent.
The presentation will aim at the analysis of spatial distribution and spatial relation of the hillforts and barrow cemeteries in East Lithuania. The Register of Cultural Properties data with some author’s additions, different GIS map layers, LiDAR data, etc. will be used for this. The task of the inquiry will be to search for the regularities in the location of the hillforts and burial sites in respect to each other (e.g. visual contact), their setting on the terrain, water bodies connecting or separating them, etc. It will be attempted to identify agents relating hillforts and barrow cemeteries in the landscape or, vice versa, separating them. Special regard will be paid to those agents which can be considered as attesting to the perceptions of the afterlife and the relations of the worlds of the living and the dead (e.g. being visually connected or “hidden” from each other, separated by water or not, etc.). Such approach is expected to set a background for deeper insights into ideology and cults practiced by the societies which left the above-mentioned sites.

TH4-05 Abstract 07
Searching for links between artefacts from areas of prehistoric dwelling sites and burial grounds

Author – Dr. 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 Baltic hinterland, was a region where various cultural influences from neighbouring areas and the European Barbaricum made an impression upon local traditions.

Summarising, it is possible to state that a comparison of finds from dwelling sites and burial grounds may provide new insights into the prehistory of the Balts during the Roman period. Therefore it is important to integrate the databases originating from the spheres of sacrum and profanum.

TH4-05 Abstract 08
A changing community in north-east Estonia from 400 BC to 900 AD

Author – PhD student Olli, Maarja, University of Tartu, Tartu, Estonia (Presenting author)
Presentation Preference - Oral

Aakre Kivivare complex is an interesting archaeological site in north-east Estonia which was settled continuously over 1000 years during the Iron Age. There is a monumental stone grave, at least two settlement sites, a hill-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 larger region during 1000 years. Therefore assumptions of a larger society of the time periods can also be made.

The chronology, characteristics of the monuments as well as items excavated from the sites will be discussed. Based on that, assumptions of the changing identity, religion and cultural and trade contacts of the community will be made.
TH4-06

CULTURAL ENCOUNTERS: PERSPECTIVES ON MOBILITY AND CULTURAL IDENTITIES IN THE BALTIC SEA REGION 4000-2300 BC

Saturday, 3 September 2016, 09:00-13:00
Faculty of Philology, Room K. Donelaičio

Author - Andersson, Anna-Carin, Gothenburg, Sweden (Presenting author)
Co-author(s) - Mazet, Laurent, Saglandet Lejre, Lejre, Denmark
Co-author(s) - Macane, Aija, Department of Historical studies, University of Gothenburg, Gothenburg, Sweden

Presentation Preference - Regular session

The mentioned time period in the North-European prehistory is very dynamic, and is acknowledged by three more significant subsistence economies. These economies are generally defined as to relate to different cultural groups and varying social customs: the farming Funnel Beakers, the seal hunting and fishing people of the Pitted Ware Culture, and the cattle herders of the Battle Axe culture. Local and regional variations of these cultural groups and subsistence economies are present in all countries around the Baltic Sea region during this time period. Issues about the social relations and contacts between these different cultural expressions have for a long time been vividly discussed within archaeology. However, developed archaeological methods and new results from by example strontium isotope and ancient DNA-analyses, have revealed that the mobility among people around the Baltic Sea in prehistory appears to have been more intense than previously thought. What impact does developed archaeological methods and results generate on the traditional interpretations of cultural encounters? How could these results be related to the archaeological material? The issue is important from the perspective that the archaeological knowledge we produce, by necessity also must be open for scientific revision. This session, therefore, aims to explore and discuss developed perspectives that could challenge the traditional interpretations of cultural encounters and borders among cultural groups in the Baltic Sea region during 4000-2300 BC. The presentations in the session may enrich archaeology on a theoretical and methodological level, and will also have the possibility to influence the wider cultural discussions concerning the contemporary constructions of cultural identities in Europe. The outcome of this session may also provide stronger arguments for a necessary understanding of the conditions of the contemporary and multicultural Europe.

TH4-06 Abstract 01

Ski Archaeology or tracking genesis & evolution of mobility technology across Prehistoric Eurasia

Author - MA Mazet, Laurent, Saglandet Lejre, Lejre, Denmark (Presenting author)
Keywords: Experimental Archaeology, Prehistoric Transport Means, Ski-Mobility-Wood Technology
Presentation Preference - Oral

May Ski Archaeology contribute to clarify the emergence of transport technology, and to map Post-Glacial migrations across Eurasia? The evidence of mobility in Post-Glacial northern Europe and Asia is well established. More than 200 ski, pole, sled, canoe finds and rock carving motives, strew the Eurasian continent from Northern England to Eastern Siberia. Recently, archaeogenetics have shed a new light on Upper Paleolithic, Mesolithic & Early Neolithic migration waves and ways within Eurasia and across the Bering Sound. All things considered, the dispersion of akin artifacts does not only questions the mobility of flint, antler and bone tools, but also the early development of durable (but perishable) worked-transport means, for hunters-gatherers or early nomadic herders and their survival equipment, through new landscapes to adapt.

Travois & skates, dugout canoes & grooved runners, skis & boxes, early backpacks & later coracles, rafts & early wheeled canoes are many examples of technological kinship, finding after ages in vehicles or dwelling shapes, recorded by subartic ethnographies across three continents: fur-shod skis, snow shoes & bark canoes, sledges & toboggans, transportable tents & seasonal huts. In use over the very long term, they all descend from the same shaping of a piece of wood, thinner or lighter, bent and adapted to transitional displacement by human (or animal) propulsion. Beyond the revision of ancient ski' typology, this research aims to reconsider the emergence and track the developments of Post-Glacial mobility technology, linking material & cognitive resources, functionality & former geography. Experimental reconstructions, emphasizing "archaic" woodworking processes - chains and leverages - and comparison to archaeological evidence and craft traditions, may contribute to sketch a "techno-genetic" family tree for these Prehistoric vehicles, through chronology and geography.

TH4-06 Abstract 02

The affect of Landscape Scale Forcing Factors on the Earliest Neolithization in the Baltic Basin

Author - Troszkay, Christopher, University at Buffalo, Cheektowaga, United States of America (Presenting author)
Keywords: Climate Change, Cultural Interaction, Neolithization
Presentation Preference - Oral

Understanding the underlying mechanisms for the "Agriculturalization" of Mesolithic Hunter Gatherer cultural groups has long been one of the great problems to be solved in Northern European Neolithic studies. This problem is especially difficult to deconstruct in the Baltic Region where traditional explanations of migration, diffusion, leasing and demographic pressures break down in the face of exceptionally slow temporal development of the Neolithic Paradigm Shift in culture across relatively small geographical distances.

In this paper a modifcation is made to Marek Zvelebil's Homo habitatu model, were used to verify the hypothesis that for the case of the formation of the Funnelbeaker (TRB) on the Kajanian Plain the substitution phase of agricultural adoption is short relative to the phases of agricultural availability and agricultural consolation because it was triggered by landscape level forcing events of various intensities and durations.

Furthermore it is posited that the contemporary dissolution of the Lengyl complex in the region resulted from greater affect due to culturally specific vulnerabilities with respect to these forcing factors than their hunter-gatherer counterparts. This can be seen in the distribution of intercultural agency markers in the material culture and settlement systems of the local TRB fusion group composed of a mix of the remnants of the Lengyl complex and neolithized hunter-gatherers.

TH4-06 Abstract 03

Neolithic Cultural Encounters in the Territory of the South Lithuania (4200-2000 BC)

Author - Marcinknieblie, Eglė, Vilnius University, Vilnius, Lithuania (Presenting author)
Keywords: cultural encounters, Neolithic hunter-gatherers, South Lithuania
Presentation Preference - Oral

Till the end of 20th century southeast part of the Baltic region was interpreted as periphery of the neolithisation centers in Central and Western Europe. Neolithisation also Indo-Europeanization process was explained by Late Neolithic colonization of Corded Ware Culture (Battle Axe Culture) warriors, who assimilated autochthonous hunter-gatherers. Archaeological and multidisciplinary research over the last 15 years denied the approach of dynamic evolution, revealed intensive mobility and interaction among various societies of hunters-gatherers and farmers. In the territory of the South Lithuania cultural encounters appear to have been the most intensive. Favorable geographical conditions and raw find found in a surface of the area caused an emergence of numerous multilayer settlements of hunters-gatherers. Archaeological material of Dubičiai, Nemunais, Narva and maybe Comb-Ware cultures also pottery of Funnel Beakers, Globular Amphora, Corded Ware cultures was found in this territory. The most of the sites were settled in a sandy soil which is unfavorable for preservation of organic materials, also the bones and parts of pottery and painted ceramics have been dominant in the archaeological material. Archaeological researches proved that during the V-VI millennium BC the territory of the South Lithuania was located in a contact zone among the areas of different archaeological cultures and pottery traditions. During the mentioned period, which in Russia is usually called the Early Metal Period (EMP), bearers of Comb and Corded Ware pottery traditions coexisted here. The area was peripheral for the both of them.

Current study is devoted to the reconstruction of cultural and historical processes, reflected in ceramic material. Among the sources of the study there were fragments of more than 200 vessels from 36 archaeological sites from the eastern part of the Gulf of Finland region.

TH4-06 Abstract 04

Pottery traditions and cultural processes in the Gulf of Finland region in the 3 mil. BC

Author - Postgraduate Kholkina, Margarita, Saint-Petersburg State University, Saint-Petersburg, Russian Federation (Presenting author)
Keywords: Gulf of Finland region, Late Neolithic - Early Metal Period, Pottery
Presentation Preference - Oral

The eastern part of the Gulf of Finland region is rather important for the study of cultural and historical processes of the end of IV - III millennium BC. This territory from the ancient time was located in a contact zone among the areas of different archaeological cultures and pottery traditions. During the mentioned period, which in Russia is usually called the Early Metal Period (EMP), bearers of Comb and Corded Ware pottery traditions coexisted here. The area was peripheral for the both of them. Current study is devoted to the reconstruction of cultural and historical processes, reflected in ceramic material. Among the sources of the study there were fragments of more than 200 vessels from 36 archaeological sites from the eastern part of the Gulf of Finland region.
Comb Ware pottery tradition is deeply rooted in the local Neolithic. As a result of coexistence with groups of population from some closed regions new components appear within this tradition. Among them the temper of asbestos concerned with this walls of the vessels and shallow ornamentation, typical for Karelia and south-eastern Finland. Another component is organic temper (leather with shell) and mostly comb ornamentation which is most probably characteristic for the upper Volga region. Interference of contacts during the EMR resulted in a variety of Comb Ware tradition - and the relative ease and speed of the spread of these is an evidence of probable relatives of their bearers.

In the III millennium BC Corded Ware tradition appears in the eastern part of the Gulf of Finland region. It also seems not to be homogenous. There are some "typical" vessels, which have a wide range of analogies in Eastern Baltic and even in so-called Arctic region. "A horizon". At the same time there are some "hybrid" vessels, that have some features of Comb Ware: imprints of comb stamp and pits, decorated and cut inside rim. This is probably the case when Corded Ware tradition was influenced by the local one - and this can be seen in exterior imitation on the vessels.

When it is worth to mention, that different variants of Comb Ware tradition are very close to each other in one of most conservative aspect of the pottery tradition - in modelling of the vessels. They are almost all formed by coiling technique. At the same time, vessels made in Corded Ware tradition are modelled from small separate patches of clay. The difference of the two points of view of the authors proves the fact that Corded Ware was just slightly influenced by the Comb one - so we can conclude that groups of people, bearers of these traditions, did not have such close contacts as those of Comb Ware.

Three Anthropomorphic Clay Figurines from Vantaa Jokiniemi, S. Finland

In July of 1990 an extremely detailed and realistic head torso of an anthropomorphic clay figurine was found during excavations conducted by Heureka the Finnish Science Centre at the large stone-age dwelling site in Jokiniemi, Vantaa, S. mainland Finland. This study challenges the traditional interpretations by examining if there is a local craftsmanship and technology in the different types of ceramics on Åland. The methods used are ICP analysis and analysis of thin sections of the clay in the vessels. The study includes early (Ka I) and late (Ka II) Comb ceramics, Jettie I and II type of Swedish pitted ware and Kiukais comb ware - as mixed with influences from both comb- and pitted ware, representing the succession between traditions. It is important to study the technology of the mixed pots and if they e.g. were tempered with limestone. Preliminary results show that there is a local technological continuity in the Neolithic ceramic traditions on Åland, visible in the preferred clay. A chronological difference in the use of temper suggests different cultural preferences. Limestone as temper is more or less synonymous with pitted ware, and it is important to analyse if there are limestone in the ware in the pots belonging to the other cultural groups for comparison and contextualisation of the results. The ICP analyses have given us answers that some of the artefacts, as e.g. a clay figure seems to have been of non-Åland origin, and the question is if this figure originates in mainland Finland or Sweden. The Åland ceramics have been compared to ceramics from mainland Sweden and Finland and we will present the results of this study at the conference.

The enigmatic Dolmen on the Island of Gotland

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.

Human-animal relationships and identity expressions at Zvejnieki cemetery (north-eastern Latvia)

The Neolithic cemeteries around the Baltic Sea reveal complex burial practices. Zvejnieki (north-eastern Latvia) is among the largest hunter-gatherer cemeteries in the Baltic Sea region. This presentation will explore the expressions of hunter-gatherer identities through ritual practices based on new osteological analysis of the animal remains in the grave findings. This research is part of a PhD project that examines how human and animal worlds co-existed, confronted, and affected each other during the Stone Age in the Baltic Sea region. The relations between humans and animals and their encounters from a perspective of materiality and posthumanism could question the dominant position of humans. The choice of the personal adornments, combination of animal species and fragmentation of body parts appear to have significant importance when burying the dead in Zvejnieki. In contrast to previous research on hunter-gatherer burials, which concentrated solely on humans, this project provides a complementary perspective that stresses a more holistic view by looking at the animal remains. This will develop a deeper understanding of the relationship of humans towards animals during the Stone Age.

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 interpretation of mobility and cultural encounters? The aim is to present a new method of interpretation, which I have developed in my thesis. The method has its foundation in a re-thinking and an archaeological adaption of the concepts and reasoning of the French sociologist Pierre Bourdieu. Such application and adaption of the concepts of Bourdieu on an archaeological material is as suggested, has previously never been done before. Though the reasoning of Bourdieu has been used in studies of archaeological material, an examination of a number of these earlier studies surprisingly revealed a simplification 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
environmental milieu, the reasoning work as a method when applied to the archaeological material. The results are presented in a case study of 57 documented and excavated burials from the hunter-gatherers of the Pitted Ware culture, at Västerby, Göteborg parish, on the island of Gotland. The results reveal that with such approach it becomes possible to analyse the relations between social structures, social practice and principles of subsistence and mobility within prehistoric societies that critically challenge traditional archaeological interpretations of the Pitted Ware Culture.

TH4-06 Abstract 10
Genomics of the people of the Baltic Sea region 4000-2300 BC
Author: Dr. Malinström, Helena, Uppsala University, Uppsala, Sweden (Presenting author)
Keywords: Corded Ware, Funnel Beaker, Pitted Ware
Presentation Preference - Oral

The general picture that has emerged from genomic pre-historic human data indicates a larger portion of differentiation between different groups than previously anticipated. One early example was the genomic differentiation observed between hunter-gatherers and Neolithic farmers. Scandinavian individuals from a Funnel Beaker farmer context were genetically closer to, for example, Funnel Beaker individuals from Germany, and to other individuals from earlier farmer context, than they were to the geographically close and contemporaneous people from Pitted Ware hunter-gatherer contexts. In this case, genetic variation seems to mirror subsistence strategies and material culture more closely than geographical proximity. This is well in accordance with previously published stable isotope data indicating differences in the dietary patterns between the two groups. This implies that the hypothesis of Pitted Ware hunter-gatherers being descendants from the Funnel Beaker population is highly unlikely, considering that the two groups are as differentiated as the most distant populations of Europe today. Recently, it has also been shown that individuals from a Corded Ware/Battle Axe context, which post-dated the Funnel Beaker farmers and were partly contemporaneous with the Pitted Ware hunter-gatherers, display yet another genomic signature compared to those of the Funnel Beaker and Pitted Ware people. Corded Ware individuals from Sweden, Estonia and Germany comprise of genetic components from western hunter-gatherers, from early farmers, as well as from Yamnaya herders.

The picture of the 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 is quite limited and that genomic information could be coupled to individuals that are genetically characterized. I will review the current status of the genomics of the people of the Baltic Sea region ca 4000-2300 as it stands at the time of the conference and aim to open up for cross-disciplinary discussions of the results.

TH4-06 Abstract 11
The settlements of the Waldburg type and the origin of Primorskaya Culture
Author: Dr. Zaitseva, Edvin, Archeology Institute of Russian Academy of sciences, Kaliningrad, Russian Federation (Presenting author)
Keywords: Corded Ware Culture, Primorskaya Culture, Settlement archeology
Presentation Preference - Poster

The questions, related to the genesis of Primorskaya Corded Ware Culture, still remain the most difficult and complicated. It is ultimately determined by the lack of research in some regions.

The archeological research, started in the 90s of the XX century, allowed us to define a particular group of settlements on the coast of the Vistula Bay (Pribrezhnoye, Ushakovo 1-5) – the settlements of the Waldburg type. Their equipment greatly differs from the previously known Primorskaya Culture complexes.

Unlike many other Primorskaya Culture settlements, the remains of the deepened up to 0.8 m into the subsoil and up to 35 m at length constructions are preserved in Pribrezhnoye. The main part of the eighteen C-14 datings, obtained from charcoal, bones, and hazelnut shell found in the lower and the upper levels of construction, corresponds with the interval 3100-2900 BC. These datings do not comply with the traditional concepts of Primorskaya Culture existence as it coincides with phase III of GAC. The ceramic complex accentuates the peculiarity of the monument even more. Different kinds of wide-mouthed pots with small bottoms and ear-like handles developed here instead of one of the most widespread pottery forms Wulstleistentöpfe, which can’t be found in this monument. The amphorae are remarkable for the oval shape of the neck. The amount of the beakers does not exceed the average 5-5%. The main cultural complex of the settlements Ushakovo-3 and Ushakovo-2, which are situated 8 km to the south of Pribrezhnoye, belong to the post-classical phase. In accordance with the radiocarbon data, obtained from the charcoal of the upper and the middle parts of the cultural layer, the monuments existed in the interval 2400-2200/2100 BC (post-classical phase). As a whole, ceramic forms and the ornamentation had transformed into widespread forms from adjoining territories, though some ware types, inherited from the previous periods, preserved.

Wood and charcoal from the lower layer in Ushakovo-3 showed the interval 2800-2700 BC. The majority of the pottery types repeat the ceramic forms from the lower level of the constructions in Pribrezhnoye. A complete identity can also be found in the technology. The ornamentation is represented by cord semi-ovals, triangles and waves. The prevailing type of the ornament is the combination of simple horizontal cord imprints and pits or dimples.

Thus, taking into account the striking peculiarity of the local cultural complex and the early C-14 datings, we can assume the existence of the prephase in the development of Primorskiy Culture, which theoretically refers to the period 3100-2900 BC. We can assume, that the original impetus came from GAC, though the main forms of wide-mouthed pots and boat-shaped vessels are most likely related to Cedmar Culture.

Peculiarities of the household constructions, ceramic complex, and material culture as a whole differ fundamentally from the antiquity of GWC. The cultural processes on the coast of the Vistula Bay apparently took their course differently than on the adjoining territories, at least on the initial stage. GAC and Sub-Neolithic cultures could play the main role in those processes.
**TH4-07 Abstract 01**

**Looking for patterns in prehistoric diets – is there an objective approach?**

- Author: Meadows, John, Centre for Baltic and Scandinavian Archaeology, Germany, Germany (Presenting author)
- Co-author(s): Bätzold, Valdis, Institute of Latvian History at the University of Latvia, Riga, Latvia
- Co-author(s): Liķise, Harald, Centre for Baltic and Scandinavian Archaeology, Germany
- Co-author(s): Zagužska, 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 Burtneks, Latvia, to show which of the informed choices we have to make have the greatest impact on the final narrative.

**TH4-07 Abstract 02**

**Mesolithic diversity in the Baltic region**

- Author: Dr. Eriksson, Gunilla, Archaeological Research Laboratory, Stockholm University, Stockholm, Sweden (Presenting author)
- Co-author(s): 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 Strandvägen – 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, Dardegā, Institute of Latvian History, University of Latvia, Riga, Latvia (Presenting author)
- Co-author(s): Ħația, Gunilla, Institute of Baltic and Scandinavian Archaeology, University of Latvia, Riga, Latvia
- Co-author(s): Ľoze, Ilba B., Latvian Academy of Sciences, Riga, Latvia
- Co-author(s): Lee-Thorp, Julia, Research Laboratory for Archaeology and the History of Art, Oxford University, Oxford, United Kingdom
- Keywords: animal bones, stable isotopes, Stone Age
- Presentation Preference: Oral

A long-standing systematic archaeological research at the Lake Lubāns valley have revealed the region to be an area with a number of significant Stone Age settlements and burial grounds. So far, 27 Mesolithic and Neolithic sites have been detected, and in 18 of them archaeological excavations have been conducted. The excavations, starting from mid-20th century up to nowadays have provided a rich and diverse animal bone material from settlements, as well as human burials. However, there have been no previous attempts to approach the material with stable isotope analysis method.

In this paper we present animal bone carbon and nitrogen stable isotope analysis results from different sites and introduce a discussion about the local isotope ecology of the Lake Lubāns valley.

**TH4-07 Abstract 04**

**How close is close? Faunal baselines in the Eastern Baltic region**

- Author: Töyr, 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 (g13C) and nitrogen (g15N) 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 paleotemporal 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 Rinnukals, Latvia, in the 4th millennium cal BC**

- Author: Meadows, John, Centre for Baltic and Scandinavian Archaeology, Germany, Germany (Presenting author)
- Keywords: childhood residential mobility, stable isotopes, mesolithic, hunter-gatherers
- Presentation Preference: Oral

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 06**

**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.Doneladė

- Author: Töyr, Mari, Tartu, Tartu, Estonia (Presenting author)
- Co-author(s): Meadows, John, Centre for Baltic and Scandinavian Archaeology (ZBSA), Schleswig, Germany

**Abstract:**

Isotopic analysis of human and faunal bone collagen from archaeological contexts is used, periodisation, sample size, and statistical testing criteria. We use new and previously published isotopic results from attempts often meet with scepticism because they require the relevant food groups to be defined, and appropriate values applied over time, geographically, between sexes or age groups, according to mortuary ritual, within an individual’s lifetime, etc. Such significant patterns in human stable isotope values, therefore, we may attempt to test whether food consumption patterns varied geographically, isotopic variations between and within human remains may show that different groups exploited distinct tissues, and to realistically model the uncertainties in all estimates.

This session welcomes contributions on methodological developments (e.g. novel sampling and analysis techniques, reference data, modelling) and case studies in different periods during the Stone Age and geographical settings within the study region, including the transition from foraging to farming. We aim to show where most progress has been made recently, and where we have the most still to do, geographically, chronologically, and in terms of species coverage and different isotopic systems.
The freshwater shell midden at Riņņukalns, 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 and late 4th millennium cal BC. Dietary stable isotope data, from collagen of three individuals buried in the midden, and also from all four individuals dated to this period at the nearby Zvāniņi 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 Riņņukalns 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.

By determining information on the diet of the sampled individuals and linking it to chronological information, the data set allows us to test some long-standing hypotheses about the importance of farming. Using the Bayesian approach allows us to consider the possibility that the transition to a Neolithic economy in the Baltic region was a gradual process, rather than a sudden one. This is supported by the presence of both Neolithic and Mesolithic elements in the settlement record, as well as in the material culture. The data also suggest that the adoption of farming in the Baltic region was influenced by both local and regional factors, and that the process of Neolithization was not uniform across the region. The results of the study also highlight the importance of considering the environmental context in understanding the adoption of farming in the Baltic region.

TH4-07 Abstract 06

The Neolithization of the north European lowlands: Archaeometric results on human remains

Author - Dr. Piszczka, Anna, German Archaeological Institute, Berlin, Germany (Co-author)

Keywords - 13C/15N isotopic analysis, Neolithization, North European lowlands

Presentation Preference - Oral

In northern Central Europe, the advance of the Neolithic way of life at the northern margin of the loess distribution for almost an entire millennium, before in the late 4th and 4th millennia cal BC, the farming economy started to spread into the northern lowlands. At this juncture, theFunnel Beaker Culture plays a key role for the question of an intermixing of the last hunter-gatherers and the southern farmers: There are indications that in the north, local forager communities continued to exist alongside the newly arrived farmers for centuries. Further east, the foraging way of life formed the basis of subsistence even longer. The last decade saw increasing progress in the analysis of human remains by achaeometric methods. Here we present results of systematic stable isotope studies (13C/15N) 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 BC.

TH4-07 Abstract 07

Deconstructing the conception of pre-Neolithic farming in SE Baltic

Author - Dr. Piščiauskienė, Gedrė, Vilnius University, Vilnius, Lithuania (Presenting author)

Keywords - SE Baltic, Subneolithic, Subsistence

Presentation Preference - Oral

This paper is a critical evaluation of zooarchaeological, macrobotanical, palynological and archaeological data and their earlier interpretation in Lithuania, which served as the basis for constructing the concept of pre-Neolithic or Subneolithic low intensity agriculture and/or animal husbandry in the Eastern Baltic region. In addition, the paper presents the first direct AMS dates on remains of domestic plants and bones of domestic animals found in the Lithuanian Subneolithic and Neolithic settlements. According to the latest research, the substantial part of, or even the whole of the earlier “evidence” was wrongly forged because of the mistakes in the identification of plant and animal species and imprecise dating. The mistakes in dating were largely due to the ignored Slovak water reservoir effect when dating bulk samples of lacustrine sediments, re-identification of the impacts of bioturbation and palimpsest on the formation of the archaeological strata, and low attention paid to stratigraphic and spatial documentation during very extensive excavations carried out in the second half of the 20th century. So far, there is no reliable evidence that domestic plants and animals were adopted in Lithuania prior to the appearance of the Globular Amphora and Corded Ware cultures in 3200/2700 cal BC. However, that does not mean that new evidence cannot be obtained in the future, if direct AMS dating of plant and animal remains from Subneolithic contexts is to be continued, and if systematic macrobotanical analyses would eventually be made on samples from settlements in higher elevations, and not only from lakeshore settlements and fishing sites.

TH4-07 Abstract 08

Zedmar Culture in the Light of 14C dates - Relating to Sub- and Neolithic Cultures in the SE Baltic

Author - Kozicki, Magdalena, Nicolaus Copernicus University in Toruń, Toruń, Poland (Presenting author)

Keywords - Bayesian modelling, subneolithic, Zedmar culture

Presentation Preference - Oral

Zedmar Culture (late: ZC) is phenomenon which absorbs researchers from one hundred years. In spite of it still it is known not more than a few peat bog sites of mentioned archaeological unit in three areas separated with not very great distances in the Northeastern Poland and in the Kaliningrad Oblast. As of today it seems like the range of the ZC is impossible to determine credible. What is most riveting is to figure out its origins especially due to establish proveniences of pottery making. This is because it seems the ZC was one of those archaeological cultures who mixed ceramic traditions (probably notably only from) both – agricultural and hunter-gatherer-fishers worlds.

To this day there is ca 50 radiocarbon dates estimated and published for sites of the ZC. What is most important main groups of it where taken as a series from stratigraphical record from two epiposmic 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's, which were carried out in different traditions, and they also may be combined in some statistical calculations.

Bayesian statistic have been used in analysing and interpreting radiocarbon data for a quite long time and is quickly developing part of archaeological research. Yet there is many obstacles in correct applying and understanding its results, mainly due to radiocarbon dating disadvantages. In case of the ZC peat bog site's stratigraphy is also an difficult.

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, Nieman, 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.

This paper is a critical evaluation of zooarchaeological, macrobotanical, palynological and archaeological data and their earlier interpretation in Lithuania, which served as the basis for constructing the concept of pre-Neolithic or Subneolithic low intensity agriculture and/or animal husbandry in the Eastern Baltic region. In addition, the paper presents the first direct AMS dates on remains of domestic plants and bones of domestic animals found in the Lithuanian Subneolithic and Neolithic settlements. According to the latest research, the substantial part of, or even the whole of the earlier “evidence” was wrongly forged because of the mistakes in the identification of plant and animal species and imprecise dating. The mistakes in dating were largely due to the ignored Slovak water reservoir effect when dating bulk samples of lacustrine sediments, re-identification of the impacts of bioturbation and palimpsest on the formation of the archaeological strata, and low attention paid to stratigraphic and spatial documentation during very extensive excavations carried out in the second half of the 20th century. So far, there is no reliable evidence that domestic plants and animals were adopted in Lithuania prior to the appearance of the Globular Amphora and Corded Ware cultures in 3200/2700 cal BC. However, that does not mean that new evidence cannot be obtained in the future, if direct AMS dating of plant and animal remains from Subneolithic contexts is to be continued, and if systematic macrobotanical analyses would eventually be made on samples from settlements in higher elevations, and not only from lakeshore settlements and fishing sites.
Central Russia (c.6500–4000 cal BC) evidence that fishing was a central element of the Mesolithic subsistence economy, both at Zamostje, and at other sites isotopes, which suggest only limited consumption of aquatic resources, despite the abundant artefactual and archaeozoological was found in the Early Neolithic (Upper Volga ceramic) layer. Radiocarbon dating also allowed the measurement of dietary stable representing at least 5 and perhaps as many as 18 individuals, ranging in age from 6 or 7 to mature adult. Two cranial fragments have the human remains are all fragments of the cranium, maxilla, mandible, or isolated teeth, including naturally shed deciduous teeth, for organic preservation, and the recovery of millions of animal bones from the five cultural layers. Aside from a woman's humerus, Only 18 fragmentary human remains have been identified at Zamostje 2 (c.6500–4000 cal BC), despite extraordinarily good conditions for organic preservation, and the recovery of millions of animal bones from the five cultural layers. Aside from a woman's humerus, the human remains are all fragments of the cranium, maxilla, mandible, or isolated teeth, including naturally shed deciduous teeth, representing at least 5 and perhaps as many as 18 individuals, ranging in age from 6 or 7 to mature adult. Two cranial fragments have been dated by radiocarbon to the Late Mesolithic (aceramic) period (c. 8500–5900 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.

TH4-08 Abstract 01
The Fortifications of Gothenburg - A Centennial Construction Site
Author - Wennberg, Tom, Gothenburg City Museum, Gothenburg, Sweden (Presenting author)
Keywords: Early modern times, Fortified city, Gothenburg
Presentation Preference: Oral

In the early 17th century Sweden was at a political turning point. This was the beginning of an era known as “The Swedish Age of Greatness” (Stormaktstiden). In the wake of a major defeat in the Kalmar War, the state was reformed regarding centralization of power, more elaborate bureaucracy and higher taxes. This was the foundation for an expanding empire and the beginning of a centennial project that resulted in the fortified city of Gothenburg. In the expanding state of Sweden during the reign of Gustaf II Adolf (1611-1632) more than 15 new towns were founded. Maybe the economically most important and strategically best placed of these were the city of Gothenburg on its Swedish west coast. Founded 1621 in the estuary of the river Göta, it became the main link to the North Sea trade and onward. The design was very modern with the continental idea of an ideal plan protected by massive fortifications. The construction of these fortifications lasted for more than 100 years and are generally described in three stages. This paper will give an archaeological perspective of this massive project and show how central theories of fortification were applied and customized for the local conditions.

TH4-08 Abstract 02
The new fortified Kalmar – a work in progress during the 17th century
Author - Konsmar, Annika, National Historical Museums, Linköping, Sweden (Presenting author)
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 1586-1648 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 waters to the Baltic Sea and a huge profit on the Sound toll – an important factor for the king in fighting for the Baltic Sea dominance and engaging the country in several wars.

Christian 4th made great effort to modernize the fortifications of the realm introducing the bastioned fortification on a large scale. He built more than 30 fortresses and fortified towns within today’s Denmark, Norway, Sweden, Germany and Estonia.

This paper wants to look into what concerns influenced the king’s strategy of building fortifications which had a strong focus on the Baltic region. Was the king demonstrating a general plan for the safety of the realm or was he reacting to sudden and changing threats? Many plans were made for building new fortifications and renovating old ones. Why were the plans carried out in some places but changes given up in others? Were finances, incompetence, enemy threats or internal politics responsible for the fate of the fortifications?

The bastions of Christian 4th - A Swedish border fortress with hidden defects

Author - Petersson, 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 Eldshög protected the coastline, Jönköping castle should secure the inland routes towards the central part of the realm.

The site was strategically well suited, being a major crossroad with access to waterways. The castle was originally a Franciscan convent, taken over by the Crown after the Reformation and fortified with walls, dry moats and corner towers. Vastly enlarged and modernized in the first half of the 17th century, this artillery fortress and its outworks covered an area of 10 hectares. From contemporary plans and drawings it is obvious that these defenses were built according to the latest principles in the art of fortification.

However, recent excavations and extensive GPR-mapping of the ruins have given reasons to doubt the battle-worthiness of this major border fortress. While written sources speak of cracks in the masonry and crumbling walls, archaeological observations of insufficient foundations and poor craftsmanship points in the same direction. It is questionable if the castle could have resisted a serious siege. Within lies the paradox of Sweden as a military state – its great ambitions in conflict with limited resources.

The Strong Link in the Chain? Jönköping Castle - A Swedish border fortress with hidden defects

Author - Pettersson, Claes B., Jönköping County Museum, Jönköping, Sweden (Presenting author)

Keywords: Conflict, Fortification, Siege archaeology
Presentation Preference - Oral

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Kuressaare was a small fortress – four bastions located at the corners of the medieval fortifications were sufficient for its defenses – but its command was essential to maintain the power on the island and carry out the ambitions of the Baltic Sea hegemony.

The general design of bastion fortifications, which was regular from the beginning and thus well consistent with the ideal of the period, persisted throughout all construction stages of the fortresses. But major and significant changes involved the bastions, particularly their most characteristic parts, their flanks.

Although the core of the defense principle of bastion fortifications – perfect flanking defense – did not change, the methods to achieve it were considerably improved during the 17th century. Archaeological investigation allows us to get a glimpse of what it meant constructionally, and analyze the fortification-theoretical arguments for these costly and labour-consuming undertakings.

TH4-08 Abstract 08
Inside the rampart on the borderline: Lava fortress in 17th century

Author - Professor Selin, Adrian, Higher School of Economics, St. Petersburg, Russian Federation (Presenting author)
Keywords: Lava fortress, Rampart, Russian-Swedish border
Presentation Preference - Oral

After Stolbovo Treaty 1617 the new border between Swedish Kingdom and Muscovy was traced. For about 10-12 years the border was not guarded. Some special system of border control appeared only in Autumn 1629 and then developed into very complicated version.

The road between Muscovite fortress Ladoga and Swedish fortress Nethoeburg (former Oreshek) after 1617 was divided into two parts lying in two states. The border was the river Lava. There on a high bank of small river a hillfort appeared in about early 1620s. It had temporary garrison (in 17th century from 20 to 200 persons). In 1657 a significant battle between Swedes and Muscovites was there nearby hillfort. After the Great Northern War it lost its significance.

The ruins of the hillfort (situated now near the village Gorodiache) was archaeologically studied. The rampart was built in two periods using some wooden constructions two times. The inside part of the hillfort was practically free of cultural layers. The inside part of the rampart was added with significant earth structures that did not allow the rampart to destroy the hillfort.

The problem is in dating. The ceramic material belongs to 16-17th cc. and is connected with local (“Oreshek”) tradition of ceramic production; meanwhile some spots of ceramic belong to the medieval period. The issue of dating the hillfort is still open but one could say that just in 17th century it was two times rebuilt.

TH4-08 Abstract 09
Breaching walls and sinking ships: experimental evidence for the performance of 17th-century heavy artillery

Author - PhD Holder, Fred, Vasa Museum, Stockholm, Sweden (Presenting author)
Keywords: Gun, Siege, Experimental archaeology
Presentation Preference - Oral

In 2014, the Vasa Museum carried out an extensive field trial of a replica 24-pounder bronze demi-cannon, based on those found on the warship Vasa. The gun was developed in 1620 as a mobile heavy field piece, adapted to naval use in 1626 for Vasa and her sister ships. This gun later equipped both the largest warships and field artillery units during the Thirty Years War, ending it service career as a fortress gun in Sweden’s Baltic outposts. A two-week program of fire revealed not only the ballistic characteristics of this type of artillery, but trials against a replica section of ship structure demonstrated that conventional interpretations of the effect of cannon fire on warships is oversimplified. This paper presents the results of the tests in the context of how such guns might have been used against both ships and shore installations.

TH4-08 Abstract 10
Prussian, early modern fortification in Pomerania, a result of the Prussian - Swedish struggle

Author - PhD Podruczyk, Grzegorz, Adam Mickiewicz University, Slubice, Poland (Presenting author)
Keywords: Fortification, Pomerania, Prussia
Presentation Preference - Oral

The Duchy of Pomerania, after the death of the last duke from the House of Griffins in 1637, was the scene of a struggle between Prussia and Sweden. Initially the duchy was divided into two parts – Prussian Farther Pomerania, and Swedish Hither Pomerania. But as a result of the Swedish defeat in the Great Northern War in 1720, Prussia also won a large part of Hither Pomerania, with the capital city and main fortresses, Stettin and the entire estuary of the Oder river. But all of Pomerania was again a witness to Prussian-Swedish hostility during the Seven Years’ War. Its last act was the annexation of Swedish Hither Pomerania with Stralsund in 1738.

One of the key factors for this struggle were the fortifications. They were built during the wars (field fortifications) and during peace-time as well (fortresses, autonomous forts or sconces and fortified cities). Siege warfare assumed an important role in the wars.

The main stress in this paper will be on the presentation of the activity of the Prussian side of the conflict, mainly in the area of construction of new permanent fortifications from the last half of 17th century through the first half of the 18th century. This large period is divided into two smaller ones.

During the first, between 1648 and 1720, Prussian activity was focused on securing the Farther Pomerania. Its main city and most important fortress was Kolberg. The bastion fortifications of this city were already built by Swedish forces during the last stage of the Thirty Years’ War, but the Prussians thoroughly rebuilt it during the long modernization between 1655 and 1715. Apart from Kolberg a fortress in Rügenwalde was the planned, but never built. The main achievement of the second period was the modernization of the fortress at Stettin. It lasted only fifteen years (from 1725 to 1740), but was very extensive, 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 Pommern, Neu Warp, Demmin, Dammgarten and Anklam), or single strongpoints such as sconces in Penemünde, Anklamer Fehr, Beinemeinde 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 (parapets for guns in the flanks of bastions in Rügenwalde); modern, French inspired, connected with the activity of Huguenot engineers such as Cayart or Montargues, and the solutions influenced by Scandinavian military architecture (powder magazines in Stettin, similar to those in Copenhagen).

TH4-08 Abstract 11
Sveborg (Suomenlinna), an 18th century sea fortress and the importance of water areas

Author - MA, PhD Student Kivioikko, Minna, The National Board of Antiquities of Finland, Helsinki, Finland (Presenting author)
Keywords: Baltic Sea, fortification, maritime
Presentation Preference - Oral

The decision to build a fortress in the first place was a political resolution from the Swedish crown, since Finland was a part of Sweden from the Middle Ages until 1809. The decision was a reaction to a situation created by two ruinous wars in 1700-21 (The Great Northern War) and 1741-43 (The Russo-Swedish War) where Sweden lost easternmost regions along with old fortifications.

To choose the location of this new main fortress, place d’Armes, was a difficult decision. It had to be in the middle of the Finnish coastline, offering a protected water area for the fleet. Helsinki (Helsinki) and Degerby (Loviisa) were competing with each other, and surprisingly waterways and water areas became one of the issues of discussion. Finally, the archipelago in front of Helsinki was chosen, and fortification was originally built on six bedrocks islands following a bastion system, which was freely applied according to natural forms of the landscape. With my forthcoming doctoral dissertation, I have been considering what is the footprint of this decision of the location of the fortress in the underwater landscape.

TH4-08 Abstract 12
Remnants of a Siege – The Siege of Ålsborg 1612 at the West Coast of Sweden

Author - Wennberg, Tom, Gothenburg City Museum, Gothenburg, Sweden (Presenting author)
Co-author(s) - Sandin, Mats, Gothenburg 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 infrequently documented, and in that case particularly by the victors. In recent years battlefield archaeology has had, at least in Sweden, a major boom, but the archaeology of sieges and siegeworks has been in the shadows. In this paper, we present the siege of the royal castle of Ålsborg 1612 during the Kalmar War, and the archaeology of certain events during this siege.

The royal castle of Ålsborg 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
in connection with the Nordic Seven Years War (1563-1570) and the Kalmar War (1611-1613). These wars were two major conflicts between Denmark and Sweden and a result of both countries constant rivalry for dominion in the Nordic region.

Between 2003 and 2006, Gothenburg City Museum conducted a series of excavations at the Älvsborg Castle. The excavations aimed at examining structures belonging to the castle's early modern fortifications. Some features were revealed, such as a 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 ordnance, including lead bullets, cannonballs, parts of rifles, fragments of grenades. In connection with the besieging aspect of siege archaeology, the excavations also uncovered remains of a besiegers approach (bag), and mines, and one of the castle's defenders' countermines.

During this project it has been possible to link some of the archaeological remains to actual events described in the historical sources therefore strengthening the actual narrative.

TH4-08 Abstract 13
The Outdating of Medieval Fortifications – The Castle of Raseborg and the Town Wall of Vyborg

Author: PhD docent Haggren, Georg, University of Helsinki, Espoo, Finland (Presenting author)

Presentation Preference: Oral

The castle of Raseborg (Finland) and the town of Vyborg (Russia) both locate on the northern coast of the Gulf of Finland. Raseborg was built in the 1370s by the Swedes and during the next 150 years the castle was gradually enlarged. The town of Vyborg situated close to the eastern border of the Swedish realm and it was continuously threatened by the Russians. There was an older castle close to the town of Vyborg but in the 1470s the town itself was fortified too. From now on high walls surrounded the medieval town.

When Raseborg was founded fire arms were not yet in use along the northern Baltic Sea. A century later when Vyborg was surrounded by the walls fire arms were known but on those days most of them were light weapons making no harm to stone structures.

In dawn of the early modern era or the early 16th century, the role of the fire arms had changed. New guns were heavier and more effective than the earlier ones. Simultaneously the range of the fire arms had become much longer. Old medieval fortifications offered not anymore a safe heaven. The new era meant remarkable changes for the old fortifications. The castle of Raseborg had lost its military importance already in the 1520s. In 1550 King Gustaf Vasa made a decision to abandon the old castle and build a modern one called Helsingborg in his new town called Helsing. This was a part of his large castle building program but in the case of Helsingborg the King was not able to realize his ambitious plans.

In Vyborg a fortified suburb with two modern bastions was built ahead of the weakest part of the old town wall in the middle of the 16th century. These arrangements combined with the old town walls secured the urban settlement for another hundred years. However, in 1700 when a new war between Sweden and Russia broke out, the old town wall was in bad condition. Three years later an officer called Lorentz Stobaeus was ordered to modernize the fortifications. The outdated town walls were now pulled down. Fortunately, before he began replacing the fortifications Stobaeus documented the old structures offering later generations a possibility to get an overview of the Europe's northernmost medieval town.

TH4-08 Abstract 14
The fortifications of Copenhagen: The western boundary as seen at Rådhuspladsen (Townhall square)

Author: Lynne, Ed, Museum of Copenhagen, Brønshøj, Denmark (Presenting author)

Keywords: Bastion, City Gate, Fortifications

Presentation Preference: Oral

Prior to excavations carried out at Rådhuspladsen in 2011/2012, relatively little was known with certainty about Copenhagen's former western boundary. What knowledge was available mainly stemmed from cartographic sources and historical references, as well as present day street layout (particularly Vester Voldgade). The first map however was only drawn in 1590, and the first historical references for this area date to the later 1530s, when Vesterport (the western gate) is mentioned for the first time. Part of the aim of this excavation was to confirm or reject existing ideas about the city's border to the west, where it was placed, how it was constructed and when, and how it changed through time.

The excavations at Rådhuspladsen carried out in advance of the Metro Cityring, offered an unprecedented opportunity to examine the remains of the fortifications along Copenhagen's western boundary, and as will be discussed here, the evidence unearthed has been extensive and very illuminating regarding the ongoing changes made to this boundary through the centuries.

The historical evidence, previous archaeological observations and the new evidence as documented in 2011/2012 will all be outlined, in an attempt to achieve as complete an account of the history of this boundary as possible.
This paper addresses the question of wild mammals and its significance to life of societies living in Poland during the Middle Ages. Several publications about particular species have been published so far mostly in journal Archeozoologia in 70's and 80's. There are also two archaeological synthetic works about past Polish fauna by Piotr Wyrost (1985, 1994). However in present research authors revisit old records and opinions on this topic. Special attention will be also paid to fusion of archeozoological, historical and ethnographical knowledge. It will be possible thanks to considering the time, space and category of archeological 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

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 Fenoscandia. In Finland the importance of hunting and fur trade as supplementary economies have been considered an outgrowth of area’s location at the northernmost limits of the cultivation zone in Europe. In recent studies hunting is hypothesized to have continued as the main subsistence strategy especially in Finnish inland areas long after the early phases of agriculture. In the northern and eastern parts of Finland hunting retained its central role up to the Modern Age. In this paper, the continuity of hunting and the long-lasting legacies of accompanied traditions are studied on the basis of Ringerark tandanus feminos and Alces alces skin and hair remains found in archeological assemblages up to the 17th century. Although the results are based on a somewhat heterogeneous and fragmented body of source material, they underline the importance of hunting and wild animals in the Late Iron Age and Early Medieval world.

TH4-09 Abstract 04

In search of an animal skin: applying SEM for the soil of Pertulanmäki Corded Ware grave, Finland

Author - PhD Vajanto, Krista, Nanomicroscopy Center Aalto University, Espoo, Finland (Presenting author)

Keywords: animal hairs, Corded Ware grave, SEM

In the acidic soils of Finland, where organic materials from Stone Age are only rarely preserved, the Pertulanmäki Corded Ware grave is an important exception. In fact, the Pertulanmäki 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 analyses made with the optical microscopy. In November 2016, we conducted new microscopic analyses to the archival soil samples taken from the grave. By taking SEM micrographs, we detected mineralized animal hair remains and identified them as belonging to the Cervidae family. Our unique findings confirm that an animal skin was present in the grave pit, possibly used to cover its floor. Similar practice has been noted from the organic remains of contemporary Yamnaya graves of south-east Europe. However, the Pertulanmäki grave is the first Corded Ware grave with preserved animal skin remains. We suggest that more soil samples should be re-analyzed with SEM, to reveal more evidence of animal skin use in other Corded Ware graves.

TH4-09 Abstract 02

Wild mammals in culture and landscape of the medieval Poland

Author - MA Wielicki, Jan, Nicolaus Copernicus University in Toruń, Toruń, Poland (Presenting author)

Keywords: archaeology, hunting, Poland, wild mammals, Middle Ages

This paper addresses the question of wild mammals and its significance to life of societies living in Poland during the Middle Ages. Several publications about particular species have been published so far mostly in journal Archeozoologia 70's and 80's. There are also two archaeological synthetic works about past Polish fauna by Piotr Wyrost (1985, 1994). However in present research authors revisit old records and opinions on this topic. Special attention will be also paid to fusion of archeozoological, historical and ethnographical knowledge. It will be possible thanks to considering the time, space and category of archeological 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 01

Bioarchaeology in action – a multidisciplinary approach on animal remains in ritual contexts

Author - PhD Mannermaa, Kristiina, University of Helsinki, University of Helsinki, Finland (Presenting author)

Keywords: interpretation, material studies, rituals

Archaeology has produced a remarkable amount of bioarchaeological material and data from ritual contexts (e.g., burials, offering sites, rock art sites). This material mainly consists of organic materials, e.g., bones, teeth, antler, hair and fur. The basic methods to study such materials - identification, qualification and quantification - have been adopted from biological sciences. Such material data, reflecting practices and studied with natural scientific analyses, form a basis for understanding elements in the past human-animal relationships. However, the data as such rarely allows us to understand the intentions or significances of these practices, and approaches to interpretation of such data vary. In order to search for better ways to understand the meanings of practices, a multidisciplinary initiative was launched at the University of Helsinki in January 2016. This initiative will gather together the researchers of archaeology, study of religion, linguistics, folklore and ethnography in order to find fresh interpretations of bioarchaeological data and the prehistoric hunter-gatherer cultures the data presents. In this paper we present the main aims, methods and goals of our project.

TH4-09 Abstract 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

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TH4-09 Abstract 05
A critical appraisal of using relative bone weights of reindeer from archaeological sites
Author: Prof. Bartosiewicz, Łasztó, 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 collection. Fragment weights have remained underexploited in developing such methods. The argument against their uncontrolled use is the changing specific weight of bone during diagenesis which precludes estimating absolute quantities of meat and even comparisons between bone deposits of different preservation.

Reichstein (1994) used the relative weights of elements in complete skeletons for cattle, sheep and pig as standards in analyzing the summarized fragment weights of elements in archaeological assemblages, presuming that the criterion of homogeneous preservation is met. Aside from NISP, weight often is the only information available in fragmented material 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. Szmyt, Marzena, Adam Mickiewicz University in Poznań & Poznań Archaeological Museum, Poznań, Poland
Keywords: Neolithic, Poland, Zooarchaeology
Presentation Preference - Oral
The paper explores the role of pig in ritual of communities associated with Globular Amphora Culture (GAC) at the turn of 4th millennium BC on the Polish Plain. Distinct ceremonial practices involving domestic animals are well-documented at sites linked to this culture, including commonly documented practice of so-called cattle burials. Pigs play also an important role for GAC communities, and are also present in burial practice; however, the role of this species in other ritual activities, including funerary, 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 phials at this site consisted of a tight cluster of remains of six pig carcasses, dissected and consumed in distinctive and standardised manner during a short time-event. The evidence from Widziszewo represents hitherto undocumented aspect of ritual activity of GAC communities, and has no direct analogues in the Polish Plain. Basing on the data, it is possible to trace the significance of pig as an animal consumed and/ or deposited in ritual contexts of GAC. Particular emphasis is put on differential treatment of pig body parts: depositing heads in human burial (e.g. in Chodzież), and communal consumption of carcasses (as documented in Widziszewo). This issue will be a subject for further research to determine whether it was a widely applicable rule or a single instance.

TH4-09 Abstract 07
Cluttered faunal remains from a Roman Iron Age burial mound in Sweden: a taphonomic perspective
Author: Stalla, Bettina, Stockholm University, Uppsala, Sweden (Presenting author)
Presentation Preference - Oral
The area of Fullerö, north of Uppsala has been subject to numerous archaeological excavations. Artefacts and structures demonstrate a long continuity from Neolithic times and onwards. Finds datable to the Roman Iron Age (1st to 4th century AD) dominate the context. Investigations in 1934 concerned a burial mound in the southern part of the area (RAR A 163:1). It contained a Roman Iron Age chamber tomb. Excavations yielded various precious finds, as well as human and animal remains. Artefacts and bones (mainly unburned) were unevenly spread out in the fill of the mound. Lootings has been suggested as the main reason. The human remains represent a single individual, an adult male. The animal bones derive from both domestic and wild species.

The burial mound at Fullerö is quite exceptional and unusually rich for its period. While the artefacts and human remains have been closely studied and interpreted, the faunal remains were only mentioned tangentially. Animals were common burial gifts in Swedish prehistory, deposited as complete individuals or food offerings. Unfortunately, looking as well as contemporaneous and later activities on the site have hampered a straightforward interpretation. An advanced approach, contextual taphonomy, was thus used to analyse the faunal content of the chamber tomb and to distinguish effects of later activities.

The identification and quantification of the remains will be accompanied by a comprehensive analysis of e.g. fragment size, weathering and fracturing. The matter is challenging and complex, but it is hoped that contextual taphonomy might offer a means to approach faunal remains in disturbed archaeological settings. This study will thus contribute to the discussion about the ritualization of animals during the Roman Iron Age and demonstrate the possibilities and limitations of archaeozoology today.

TH4-09 Abstract 08
Animals of the living and the dead. Animal bones of Iron Age burials and settlement at Old Uppsala
Author: PhD Magnell, Ola, National Historical Museums of Sweden, Lund, Sweden (Presenting author)
Co-author(s) - Spilling, Emma, SAU Societas Archaeologica Upsaliensis, Uppsala, Sweden
Co-author(s) - Prata, Sofia, SAU Societas Archaeologica Upsaliensis, Uppsala, Sweden
Keywords: animal bones, cremations, social zooarchaeology
Presentation Preference - Oral
Around the Baltic Iron Age burials animals reflect the importance of animals to humans in the Pre-Christian societies. Burials and ritual depositions of animal bones reveal complex social and symbolic relationships between humans and animals beyond the use of animals as a food source. It is evident from several studies that animals had different social and symbolic significance for the living and for the dead in the burial rites. Excavations in Old Uppsala, Sweden of a Late Iron Age settlement with a large contemporary cemetery have revealed new information about 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 animal species, but also the age and sex of the animals. The taphonomic effect of cremations on bones from the burial in relation to the unburned bones from the settlement has been important to consider.

The report represents an attempt to study what has been studied to evaluate if whole animals or body parts of animals have been put on the funeral pyres and to compare with consumption patterns and depositions at the settlement. The study explores the use of animals to express status and or identity, but also consider religious symbolic meaning of the animals. The relationship between animals and humans in Old Uppsala will be related to regional and inter-regional trends.

TH4-09 Abstract 09
Sämi 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) - Fjellström, Markus, Stockholm University, Stockholm, Sweden
Co-author(s) - Sandgren, Marie, Stockholm University, Stockholm, Sweden
Keywords: animal offerings, reindeer domestication, Sámi archaeology
Presentation Preference - Oral
In recent years, archaeological excavations have been conducted on Sámi offering sites (dating ca. 11th to the 17th centuries) in Finnmark Lapland. Moreover, some materials from Northern Sweden and archived in museum collections have been revalued with new methods and questions. Zooarchaeological analysis, radiocarbon datings of animal bones and stable isotope analyses reveal new information about religious ritual, religious change, and human-animal relationships among the Sámi. We argue that there was a change in the offering tradition, interweaving with changes in the subsistence economy and especially reindeer domestication. Our results indicate that reindeer domestication, acknowledged to have had a major impact on social organization and economy, was also a major factor in the transformation of Sámi indigenous religion. However, the underlying nature of the offering tradition remained consistent although the focal species of economic and religious interest changed.
TH4-09 Abstract 10

Reindeer in Lithuania: a technological study of antlers artefacts

Author - Daugona, Linas, Klaipėda University, Klaipėda, Lithuania (Presenting author)
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Keywords: Lithuania, Lyngby type axes, reindeer antler
Presentation Preference - Oral

In the Lithuanian territory found 32 skeletal bones and manufactured artefacts of reindeer (Rangifer tarandus). Between them in 2014-2016 three Lyngby type implements made out of reindeer antler were found within territory of Lithuania. One of the Lyngby type artefact dated back to the 44000 to 42000 BC, the other two - 12 000 BC - to Late Allerød - Younger Dryas period. All other artefacts dating to Younger Dryas period. Taxostratig, stable isotope, radiocarbon dating, morphological examination on the implements carried out in Klaipėda University laboratories tells us that the one of them was made out of adult reindeer antler and was used as an axe. Wear marks indicate their use as a working tip. The other two was made of reindeer and was used as a hammers connection with leather and fur. Portable Confocal Scanning Light Microscope and Computer tomography scan of a reindeer antler artefacts illustrated of the anisotropic orientation of mineralized collagen fibers. These studies demonstrated the hierarchical structure of reindeer antlers. The trabecular bone is anisotropic, with aligned channels directed parallel to the long axis of the antler beam. Anisotropy in mineralized collagen fibre orientation can thus be seen as a conservative act perpetuating familiarity and stability within the group to which the wearer belonged.

TH4-09 Abstract 11

Late Neolithic V-perforated buttons from a female burial in SE Poland - revisiting a case study

Author - Wrinicka, Kinga, University of Wrocław, Institute of Archaeology, Wrocław, Poland (Presenting author)
Keywords: Bell Beakers, osseseous materials, personal adornments
Presentation Preference - Oral

The aim of this paper is to revisit a case study presented at the 21st Annual Meeting of the EAA in Glasgow in 2015 using results from all analyses conducted and offering an interpretation on their basis. During my presentation in Glasgow I argued that in regard to small and weathered finds it is often impossible to identify the raw material only by macroscopic evaluation but the use of low-invasive archaeometric techniques (conventional microscopy, SEM, microCT) can reveal structural micro-features and properties facilitating raw material identification. It was so in the case of eleven V-perforated bone buttons from a Bell Beaker female grave found at the Sandomierz-Zawichost Hill site in south-eastern Poland. Low power microscopic approach revealed qualitative features indicating that the osseseous material used in the manufacture of these buttons might be animal dentine (ivo). If confirmed, it would link this eastern Bell Beaker engrave to the Iberian Peninsula, where the use of iorises for the manufacture of V-perforated buttons is well-known.

In order to test this hypothesis, different analytic non-destructive and low-invasive techniques of imaging and morphometrics were employed: conventional microscopy (high and low power approach), scanning electron microscopy with energy-dispersive X-ray spectroscopy (SEM-EDS) and micro-computed tomography (microCT). The results were cross-checked using Zooarchaeology by Mass Spectrometry (ZooMS) method, developed at the BioCh laboratory of University of York, United Kingdom.

Combined results showed that V-perforated buttons from the Sandomierz-Zawichost Hill site were made of cortical tissue with a fringe of cancellous tissue from a long or a flat bone (e.g. scapula) of genus Bos (domestic cattle or wild aurochs). It is consistent with what is known about Bell Beaker animal bone assemblages from Central and Eastern European context where cattle bones are the most numerous category of bone.

Although the material is not exotic and as such it does not directly link the Polish Bell Beaker southern group with the Iberian Bell Beakers, it is interesting in terms of bone technology and its significance. In this case it can be argued that the choice of this particular material for the manufacture of V-perforated buttons is meaningful - the buttons are made from a bone (or bones) of familiar animal: this material was easily attainable and manifested mechanical properties known to the artisan. The raw material choice can be thus seen as a conservative act perpetuating familiarity and stability within the group to which the wearer belonged.

This study shows that a comprehensive low-invasive analysis of small and weathered artefacts can facilitate raw material identification and, subsequently, highlight issues connected with the raw material selection and its significance in the past societies.

TH4-09 Abstract 12

From Mesolithic to nowadays – few minutes on recent advances in Estonian zooarchaeology

Author - Reinmäe, Eve, University of Tartu, Tartu, Estonia (Presenting author)
Co-author(s) - Lõugas, Tatjana, Tartu University, Archaeological Research Collection, Tartu, Estonia
Keywords: Animal husbandry, Estonia, Zooarchaeology
Presentation Preference - Oral

During the last few years Estonian zooarchaeology has focused on several distinct topics, including the Late Bronze Age Avu settlement in Saaremaa Island, and the Late Iron Age élite inhabitation site in the mainland Villandi followed by the transition to the Middle Ages. Medieval assemblages have been analysed in numbers, considering both mammal, bird and fish remains. The results have contributed, for example, to the pattern of long distance fish trade, everyday life of the order castles, as well as revealed small matters of daily animal husbandry. Research on ancient mitochondrial DNA has elucidated the development of sheep husbandry from the Late Bronze Age onwards, while as a closer look on animal tooth and bone pendants have given new information on the perception and rituality the past people had in relation to the natural world. Short overview of this vast span of themes will be given in the presentation, with an objective to open up possible collaboration and discussion on zooarchaeological research in the Baltic.
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 birds, prey 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 dear (Cervus elaphus), elks (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 the strong noblemen and their dependence on the nobility of the Samogitian affluent circle. For example, in 1563 Stanislawski Brzeziński sent 60 partridges for Prussian Duke Albrecht, three years later he sent 100 partridges. We also know that the householders of manors of the seventeenth century already took care of animal husbandry, productivity and improvement of the species. It is believed that at the beginning of the seventeenth century the Dutch cattle came to the major manors in Northern Lithuania, most likely through Riga. Pedigree cattle and horses, which were fed and considered to be 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 zoochaerology. As the past researchers, we have to try to realize the full potential of zooarchaeological data and different methods of zoopaerology.

Keywords: antiquities, archaeology, Poland, Middle Ages, poultry, hunting

Presentation Preference - Oral

TH4-09 Abstract 16

Birds and people on polish seaside in Middle Ages

Author - MA Wiejacka, Nicolaus Copernicus University in Torun, Poland, Torun, Poland (Presenting author)
Co-author(s) - Prof. Makowiecki, Daniel, Nicolaus Copernicus University in Torun, Poland
Keywords: birds, archæozoology, 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 the history of Pomorania and of Poland. We can list, among others, Gdanś, Kolobrzeg, Szczecin, and Wolin. Each of these was developing in a different cultural and environmental context. Archaeological research suggests that the role of birds in the 11th, 12th, 13th centuries 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 archæozoological 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.

Presentation Preference - Oral

TH4-09 Abstract 17

Did rats abandon a sinking ship?

Discovery of animal products from the 14th c. shipwreck in Tallinn

Author - Dr. Lõugas, Lembit, University of Tallinn, Tallinn, Estonia (Presenting author)
Co-author(s) - Maitre, Lima, University of Tallinn, Tallinn, Estonia

Keywords: animal products, Medieval Time, shipwreck

Presentation Preference - Oral

The archaeological excavations of shipwreck that was found at a construction site in Kadriorg, Tallinn, Estonia in 2015, have resulted in a large amount of spectacular finds. The wreck originates from the 14th century and is a medieval cog-like merchant ship. Many everyday items made of metal, wood, birch bark, leather, textile, clay and stone, have been found both inside and around the ship. There are some burn marks visible on the wreck, which gives reason to assume that there was a fire that caused the shipwreck. Probably the lower part, which was not damaged so much sanked 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.

Presentation Preference - Oral

TH4-09 Abstract 18

How to process meat for a 17th century warship

Author - Gomik, Björn, University of Kiel, Kiel, Germany (Presenting author)
Co-author(s) - Wiejacka, Martyna, University of Kiel, Kiel, Germany
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 its rise to stromaktidten, 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 2500 mammal bone fragments could be mapped and specially analyzed within the ship, showing the main provision storage in the hold and distributed spots of presumably personal food at the upper gundeck as well as some smaller bone assemblages from the provision of special individuals or groups. Another 800 fragments must be considered as partly related to livestock 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 Ortjon (https://www.evolutionaryarchaeology.org/bonecommons/items/show/16868). GIS shape files for all bigger post cranial bones where created in a higher resolution and from different sides. As an attempt to reconstruct meat cuts all the bones where recorded with a portion based system which can be displayed on the GIS files according to their frequency. Beside from obligatory measurements after Von den Driesch (1976) was the remaining length of the fragments recorded. All bones where weighed and the meat weight was calculated.

The butchery marks were identified as cutting, chopping or sawing and plotted with the direction of the strike as separate layers for each bone on the GIS files.

Presentation Preference - Oral

TH4-09 Abstract 19

Evolutionary history of Baltic seals inferred from the analysis of historical and subfossil samples

Author - Dr. Piotr, Makogonowa, University of Lincoln, Lincoln, United Kingdom
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Keywords: Baltic Sea, mDNA haplotypes and haplotype diversity, sea seals

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 Baltic and other populations is the main goal of this research. In particular, the comparison of mDNA haplotypes and haplotype diversity between historical samples (from 1843-1970) and modern samples (collected after 1975),
referring to a demographic bottleneck in 1970-1980’s. Subfossil samples (9,500-2,800 yBP) had higher haplotype diversity than historical samples of each extant species, suggesting that seal populations have been losing genetic variability throughout the Holocene, and not only as a result of recent population declines. An effective population size estimated from nucleotide diversity of subfossil samples was lowest for harbour seals and highest for ringed seals, which corresponds well with the inference based on the relative frequency of these species in archaeological sites at the Baltic coast. The effective population size of harbor seals was comparable to those found in higher than grey and harbour seals, suggesting that frequent occurrence of harbor 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 harbor seals resulted solely from the hunting pressure.

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 Kreizi, Budjanka, Jurizdika I and II, Kreizli burial-ground were led by Rauls Šnore, Frances Zagonis, Liudmila Vankina, who confirmed that the territory around the lake was inhabited during the Middle Stone Age. But after few years of surveying archaeological R. Šnore found more story find concentration sites all around the lake that could also have been a settlements - Baltis point, Baznīckunga island, Harpūnu island, Jurizdika I, II, Kali, Kubulova, Lemuža, Ludza town, Seļekova I, II, Seļūnpui, Užte un Viži (Örbī). Material use-wear was important all Stone Age but only used materials depend on climate and accessible animal species. Environment combined with material use-wear technology was an important part of Stone Age people lifestyle so it is important to see correlation between worked bone and artefacts tools from excavated sites and stray find concentration places, also to clear out what kind of methods were used to make hunting and fishing tools in Stone Age settlement complex all around Lielais Ludzas lake in Latvia.

Mostly all tools were polished by stones, sawed on top or at the bottom of tool, part of fishing gear is bored for fishing hook holes and bars. Some of tools are made of big flakes of bones which are result of process of bone splitting. Some of the tools are decorated with carved decorations as well, but it is not a big part of all tools from Lielais Ludzas Lake. Tools mostly are made of the deer, elk, wild boar bones and antlers (identified by K. Paavere). Although not all tools were analysed, the dominance of the previously mentioned animals matches with the Latvian 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%).

As a result of this study, it can be stated that an intensive exchange of technical knowledge between workshops around the Baltic 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 craftsperson 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, indicating that there was only a limited spread of traditions and knowledge.

In this period, the use of steel in cutting edges in tools and weapons developed in the area south of The Baltic Sea whereas neither welded steel edges or carburisation was introduced in ten smelters of Denmark. One illustrative example is a number of single edge swords found in the votive deposit at Vimose on Funen. Most of the swords were made from combination of layers of iron and steel. On the basis of analyses of slag inclusions they were judged to have their most likely origin in the area of present day Brabant. 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 craftsmen throughout the area, and that technological traditions have been exchanged.

Iron, and especially higher quality metal as steel, was probably also traded within the area, and slag inclusion analysis shows that steel in Denmark was primarily acquired from abroad. Unfortunately, reference databases are not yet sufficiently developed, especially for the eastern areas, and it is therefore not possible to give a more precise description of the trade routes. Future cooperation on the exchange of analyzes of slag from iron smelting, will be able to open new perspectives in the identification of the trade of metal in the past.

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**TH4-10 Abstract 03**

**Vendel period seaxes from Grobin**

**Author:** Abolins, Artis, Riga, Latvia (Presenting author)

**Keywords:** Nordic Sea region, Metal Working, Vendel period

**Presentation Preference:** Oral

There has been little written about the Scandanavian seaxes found on the Eastern shore of the Baltic sea, and this paper is an attempt to present an overview of the finds from the Scandanavian colony in Seeburg (modern days Grobin) in Latvia. Since it is the only known and probably the most important Vendel period seaxe from outside their primary territory, it holds the special interest for researchers, but, so far, no special attention has been devoted to the seaxe finds. There are several fine examples in collection of the National History museum of Latvia, including one especially impressive longseax over 70 cm in length. After careful examination of the blade one can conclude that it was once a very fine example of bladearms art of the period, consisting of mix of mono-steel and pattern-welded elements. This seaxe 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 skil of the maker, but also provides us with additional information on the people of this fascinating time period (burial is dated to the late Vendel period (most likely, 8th century).

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**TH4-10 Abstract 04**

**Bronze Age fine metal working in Nordic Europe - gold discs and vessels**

**Author:** Dr. Hab. Armbruster, Barbara, Laboratoire d’archéologie TRACES - UMR 5608, Toulouse, France (Presenting author)

**Keywords:** Fine metal working, Nordic Bronze Age, sun discs and vessels

**Presentation Preference:** Oral

Gold was an important means of cultural and social expression and exchange during the Bronze Age, a period particularly rich in golden prestige items. Along with 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 scrutinizing the development and interdependance of form, function and technology of gold work. One topic will be the goldsmith’s workshop, its tool kit and materials used, as well as its social role in Bronze Age society. The presentation also intends to highlight the particular decoration techniques and tools applied to these sheet ornaments and luxury table ware.

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**TH4-10 Abstract 05**

**Some aspects of the local weapon production in Western Latvia from 9th to 13th Century**

**Author:** Dr. Tomsons, Ants, Latvian National History museum, Riga, Latvia (Presenting author)

**Keywords:** Early Medieval, Eastern Baltic, Weapon production

**Presentation Preference:** Oral

The question of local weapon production in the lands of the western Baltis during the end of prehistory and with the beginning or Medieval period and during the Baltic Crusades is closely connected with a problem of formation of the early statehood of the local peoples in the Eastern Baltic, Western Latvian weapons finds, especially more than hundred evidences of the double edged swords, pattern welded spearheads are significant source about warior elites with similar identities across the whole region. These finds also reflect developed craftsmanship and several possible production centers of these weapons in Couronian lands, using both imported material sources, as well as using the skills of local craftsmen working with non-ferrous metals.
The concept of multimetality and the possibilities to capture this elusive, yet crucial, element of metal craftsmanship through the study of metallurgical debris will also be discussed in the paper. The surveyed sites and the reconstruction of their internal workshop organisation will serve as examples of how multimetality was manifested on the sites and in the landscape.

TH4-10 Abstract 10
On some aspects of specialized production in Roman Iron Age. A case study of S-shaped clasps

Author - Patalan, Krzysztof, Zentrum für Baltische und Skandinavische Archäologie, Schleswig, Germany (Presenting author)
Keywords: Goldsmith, Roman Iron Age, S-shaped clasps
Presentation Preference - Oral

The main topic of the paper are goldsmith products from the Roman Iron Age in the southern and western zone of the Baltic Sea region with emphasis put on the production of golden and silver S-shaped clasps which were used as a closure of the necklace. Although one can speak about chainé operators in context of the individual specimens or in some cases products from limited geographical area such generalizations are not possible to the whole material. The use of certain techniques, order of their application or attempts to bypass them provide important information about local production and can be used to identify the producers or at least in attempt to limit the area of origin of the 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 influences in the goldsmith production of the Roman Iron Age. On the other hand this deliberations - based on the assumption that S-daps 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 heterogamy.

TH4-10 Abstract 11
The path of knowledge - Transfer of knowledge of bronze crafting 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 this subfield. I intend in this talk to discuss technology dissemination and the availability of bronze casting technology in southern Scandinavia during the Late Bronze Age. Was the knowledge of bronze casting a closed knowledge or was the technology available to more people than specialists in bronze crafts? What paths have new innovations in form and function and the knowledge of changes in bronze casting technology taken? Can we see variations and ingenuity of bronze smiths at a local level? 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 opératoire of bronze casting and by discussing different parts of bronze casting technology such as soapstone moulds, crucibles, technical ceramics and examine specific everyday objects made out of bronze such as socketed axes.

TH4-10 Abstract 12
Markers of ethnicity and female power? Some reflections on Scandinavian brooches in Viking Age Rus

Author - Niell, Michael, Uppsala University, Uppsala, Sweden (Presenting author)
Keywords: Baltic metal working, Artefact biography, Runikid dynasty, Viking diaspora, Viking Age Rus
Presentation Preference - Oral

Prehistoric pictures are a special sort of source material. Pictures are not random products – they were created to convey messages. This statement applies especially to the oral culture of the Viking Age. However Viking Age pictures rarely occur as independent monuments. More often, they appear as animal art on metal artefacts. The starting point for my reflections is a group of grandiloquent 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 antipирушь. Why was there so much effort put into restoring the Gnezdovo brooches? One intriguing possibility is that these brooches represented heirlooms from an earlier generation of settlers. Presumably, over time some of these heirlooms transformed into important symbols of Scandinavian ethnicity.

In the case of the grandiosely buried 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 ornament, we might ask whether the Yelets emblem represents the might of the princely dynasty or the power of an individual female known from written sources. There is plenty of circumstantial evidence to conclude that Yelets brooch was made for a woman with close ties to the Rurikids, possibly during the second half of the 900s or the early 1000s. Ancient concepts of personhood were such that the actions of an upper class female fell back on her entire clan. Thus, we should perceive the mere act of commissioning that sumptuous brooch as a statement of might and power. Special consideration should also be given to the role of women in the building of alliances, as well as the function of female heirlooms within the social interplay. In fact, the Yelets brooch displays signs of wear and repair that might indicate that it had been passed down to later generations. As Viking Age craftspeople were able to travel considerable distances, there would have been no need for our female patron to seek out the gold smith. Having said that, we should neither exclude the possibility of a precious gift bestowed upon her, either by one individual or by several people.

TH4-10 Abstract 13

Technological aspects of the Swedish gold collars

Author - Dr. hab. Armbruster, Barbara, Laboratoire d’archéologie TRACES - UMR 5608, Toulouse, France (Presenting author)
Co-author(s) - Pesch, Alexandra, Zentrum für Baltische und Skandinavische Archäologie, Schleswig, Germany
Keywords: fine metal working, gold collar, Migration period
Presentation Preference - Oral

The Swedish gold collars from the Migration period are enigmatic masterpieces of Early Medieval fine metal working. Their refined imagery, complex form and decoration, and sophisticated manufacturing techniques were studied within the scope of an international research project coordinated by Pesch, Alexandra. This paper deals with the technological aspects of these fineries including the "chaîne opératoire" of the production processes and the tools implied. It provides new insights on the collars’ technology chosen by the goldsmiths to create the composite body, the figurative elements and the filigree and granulation work. Especially interesting are the technological features of the construction of the tubular sheet work and the making of the so called miniatures. The specialized and complex knowledge of the makers will be set in the context of fine metal working in the North during the Early Medieval period.

TH4-10 Abstract 14

Iron smelting processes in the Žardė-Bandužiai archaeological complex (Lithuania)

Author - Masiuliene, Ieva, Klaipėda University Institute of Baltic Region History and Archaeology, Klaipėda, Lithuania (Presenting author)
Co-author(s) - Šelkienė, Audra, State research institute Center for Physical Sciences and Technology, Vilnius, Lithuania
Keywords: chemical analysis, Iron Age, iron smelting
Presentation Preference - Oral

Žardė-Bandužiai archaeological complex is situated near the Baltic Sea in the southern part of Klaipėda city (western Lithuania) and includes Žardė (Kunciai) Hilfort, Žardė I–II settlements, Bandužiai I–II settlements, Bandužiai (Žardė) settlement, and Bandužiai cemetery. Few seasons were investigated the Bandužiai (Žardė) and Bandužiai settlements and discovering archaeological structures: hearths, fireplaces, ore excavation pits, ore burning fireplaces, charcoal production pits, iron smelting furnaces and wells. The purpose of some of the pits and structures has so far not been determined. The chronology of the Bandužiai (Žardė) 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-EDX) 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 Spiginas archaeological sites are located in the Lake Birzulis region, West Lithuania. Calibrated 14C data for the Mesolithic graves from Domains are around the second part of the VII millennium BC – the middle of the V millennium BC. Spiginas Mesolithic graves belonged to the period from the second quarter of the VII millennium BC to the middle of the IV millennium BC [Česnys, Butrimas, 2009 table 1]. According to the results of previous investigations, the complete of non-metric traits in the sample from Domains and Spiginas was connected with so called «Middle European» dental type [Baïlousien, Česnys, Januarauskas, 1992, Baïlounien, 1985, Buhrims, 2012]. The main features of this type are the absence of eastern traits such as, for example, shelving 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 different 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 cranians were observed using ADSUS, Russian dental system, called after A.A. Zubov and the program of the archais 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 (Zvejnieks), Russia (Yuzhnii Olein Ostrov), Sweden (Skattebol) and Mesolithic and Neolithic series from Ukraine (Vasilevych, Voronija-1, Voronija-2, Nikolchik, Yasynovka) because some of the Neolithic burials of this region were synchronous to the Baltic Mesolithic.

The results of our analysis showed the population from Domains and Spiginas belonged not to the clear middle-european type, as suggested in previous articles, but to the Baltic variant of this type. Difference between these two variants is in the presence of eastern admixture in the latter. This admixture strongly presents in the North, in the Yuzhnii Olein Ostrov, less in Zvejnieks and minimality in Latvian samples. So we can suggest that its presence depends on the distance from the Baltic side. 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 belonged to clear middle European dental type, without any eastern admixtures.
Prevalence of pathological lesions in the Iron Age water burial site Levānuža, Western Finland

Author - Sato, Kati, University of Helsinki, Helsinki, Finland (Presenting author)
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Co-author(s) - Mannermäki, Kristina, University of Helsinki, Helsinki, Finland
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Keywords: Finland, Osteochondritis dissecans, Paleopathology

Presentation Preference - Oral

The evidence for VS from these two post-medieval communities 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.

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Evidence for venereal syphilis in post-medieval Riga, Latvia

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Keywords: congenital syphilis, infectious disease

Presentation Preference - Oral

This research aims to evaluate the presence of venereal syphilis (VS) in two post-medieval cemetery populations from Riga, Latvia. Both skeletal populations were excavated prior to building and reconstruction work. Two hundred and seventy-four individuals from the Riga Dome Church cemetery (RDCC) and 198 individuals from the St Peter’s Church cemetery (SPCC), dating from the 16th – 17th centuries AD were included in the analysis.

To estimate age at death of the adult individuals, degenerative changes of the pelvis were evaluated, while sex was based on the morphology of the pelvis and skull using standard methodology. Age of non-adults was estimated according to dental development and eruption, using long bone length if dental analysis was not possible. All individuals were then observed for pathological changes possibly associated with VS, including destructive lesions on the outer table of the skull and in the temporal bone, 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 and 77 non-adults in the SPCC population. Six individuals from the RDCC and two from the SPCC with lesions possibly associated with VS were selected for further analysis.

Pathological changes on the outer table of the skull and on the long bones of legs characteristic of VS were observed in four female and one male individual from the RDCC. In addition, changes possibly related to late congenital syphilis were observed in a 4 and in a 1-year old non-adult individual from this cemetery. All these individuals had been buried in a small area adjacent to the Northern wall of the Riga Dome Church, and it has therefore been hypothesised that it belonged to a hospital.

There were only two individuals with possible VS from the SPCC, a female and a male, both aged between 20 and 30 years at death. The skeletons were incomplete, and the diagnosis was based on bilateral, extensive new bone formation on the arms and legs, along with cortical thickening of the long bones. St Peter’s Church of Riga was associated with wealthy traders, but the cemetery outside the church mostly accommodated the ordinary, poor residents of Riga who belonged to St Peter’s Church. The evidence for VS during the excavation, mainly dress fittings, confirmed the presence of this lower status population group in the excavated area.

The evidence for VS from these two post-medieval communities 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.

Finnish place name orthography

The historical migrations and relations of mankind are currently under an intense investigation through novel means in archaeological sciences. Studies illuminating the specifics of our past use wide range of interdisciplinary methods, such as isotopic analyses, ancient DNA (aDNA) analysis and genetics. Ancient DNA (aDNA) has proved a powerful tool in analysing genetic and evolutionary relationships, particularly in populations before historical records. Ancient DNA (aDNA) has a limited maternal lineages be followed back in time. Comparing the distributions and divergence of mitochondrial haplogroups helps revealing past migrations and shifts in the genetic structure.
As a modern population, Finns are well known for an abundant record of genetic research. There are, however, no ancient DNA studies focusing on Finnish population history before now. DNA technology can enable a comprehensive genetic analysis. Today we can get information about ancestry, origin, gluten and/or lactose intolerance, family relationships and sex. It is also possible to predict physical appearance with regards to hair, eye and skin color, length, wet/dry earwax, body odor and BMI.

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 socially status. However, with recent developments, modern DNA technology can enable a comprehensive genetic analysis. Today we can get information about ancestry, origin, gluten and/or lactose intolerance, family relationships and sex. It is also possible to predict physical appearance with regards to hair, eye and skin color, length, wet/dry earwax, body odor and BMI.

The introduction of next generation sequencing (NGS) has opened up a whole new field allowing numerous analyses that would not otherwise have been possible. We will use NGS technology and massive parallel sequencing for a detailed genetic analysis of the Salme materials along with current archaeological methods to generate a database with DNA profiles and information about individuals from the boat graves. Ancient skeletal remains present a number of challenging features where the amount and integrity of recovered DNA are limiting factors. We will use NGS technology to overcome many of the challenges in a data-driven genetic analysis. The assay provides approximate 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 seatainers from early Viking ages.

TH4-11 Abstract 08

Bringing them to life - A multidisciplinary study of Eura Luistari cemetery (6th-12th c AD), Finland

TH4-11 Abstract 07

DNA analysis of the individuals buried in the Salme boat graves
Kivikuulais 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 Kivikuulais hill-fort in the lower Daugava river are related to bronze working (Vaksas 2010). According to archaeological excavations the hill-fort was built on top of a cemetery, from which burials of more than 230 individuals have been found. Recently, a set of radiocarbon dates on both the hillfort and cemetery provided new information on the relative dating of these and even challenged the old interpretation (Ononen et al 2013). In 2014 Finnish Cultural Foundation provided support for a new project to study chronology of the site, and cultural and genealogical connections between Kivikuulais site and eastern Fenno-Slavic. In this contribution, we present the status of this project. First, we discuss the cultural connections based on archaeological investigations of the artefacts from Bronze Age cultures of north and south of Gulf of Finland. Second, we present new 14C-based chronologies of the site to shed light on both absolute and relative dating of hillfort and cemetery. Third, we present new data on dietary habits and discuss genetic affiliation of the people based on 13C, 15N isotopic data and ancient DNA measurements on human bones, respectively. Particularly, possible genetic connections between Kivikuulais and ancient and present populations of eastern Fenno-Slavic are discussed. Vaksas A. 2010. Latvia as part of a sphere of contacts in the Bronze Age. Archaeologia Baltica 13: 153-160.


**TH4-11 Abstract 10**

**Human bone AMS 14C dating and the freshwater reservoir effect?**

**An East Baltic Iron age sample**

**Author:** Dr. Kurita, Laurynas, Lithuanian Institute of History, Vilnius, Lithuania (Presenting author)

**Keywords:** East Lithuania, Freshwater reservoir effect, Radiocarbon dating

**Presentation Preference - Oral**

The chronology of Baltic tribes’ Roman period – Viking age archaeological material has up till now been built upon typological dating of artefacts, mostly those discovered at burial sites. However, the lack of chronological reference points is becoming increasingly evident. In many cases, sequences of particular artefact assemblages are sufficiently definite, but unrelated to absolute dates. Radiocarbon dating of series of samples associated with different artefact types or other archaeological markers should contribute a great deal not only to dating particular sites, but also to testing and correcting typological shemes and thus advancing the capabilities of relative chronology.

In order to achieve the above-mentioned goals and to test the research potentials in this field, a project was carried out during which 30 human burials were AMS 14C dated. The samples (11 of unburnt bone, 17 of cremated bone, and 2 of charcoal from cremation burial) from Roman period – Viking age East Baltic territories were selected in order to cover all chronological horizons (c. 3400–112 centuries AD) and to obtain radiocarbon dates associated with much artefact types as possible. Special attention was also paid to the construction of the burial, i.e. in selecting the samples, every effort was made to represent a maximum variety of construction features, which are usually considered to be chronological indicators. Calibrated radiocarbon dates were statistically compared with the ones determined on the basis of the grave goods employing all currently available typological schemes.

The radiocarbon dates appeared to be unexpectedly old compared to the typological ones, and this can be hardly explained by the uncertainties of dates of cremation alone. In only 18 instances did the intervals of absolute and relative dating overlap. The collected data, however, offer an opportunity to set a new goal for the study, i.e. to search for the source of the date offsets, and the possibilities of eliminating them. Overy old radiocarbon dates in similar contexts are generally associated with the freshwater reservoir effect. The results of radiocarbon dating demonstrate that this effect should be considered and needs special regard. In order to evaluate the possible significance of this effect’s impact, to determine the reservoir age, and to verify the possibility of eliminating this effect, additional investigations need to be conducted. At this stage of research, additional radiocarbon dating of related contexts is necessary. Another important research direction should be the determination of the quantity of food of aquatic origin in contemporary human diet. For the material of the above-mentioned period and region, radiocarbon dating alongside with stable isotopes (δ13C and δ15N) analysis of human and horse burials seem to be the most relevant methodological approach in order to assess the differences between radiocarbon ages of those stratigraphically related bone samples which are affected by the freshwater reservoir effect and those which are not. It would likely allow the modelling of the true age of human bone samples – both those dated during the project and those which will be dated in the future.

**TH4-11 Abstract 11**

**Pattern and diversity in the Late Mesolithic – Early Bronze Age mortuary practices of Eastern Baltic**

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**Keywords:** Eastern Baltic region, Archaeoanthropology, Mesolithic, Neolith, Bronze Age, mortuary practice, burial practice

**Presentation Preference - Oral**

Recent studies (archaeoanthropology and new C14 AMS dates mainly) 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 all 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, Liivi, University of Tartu, Tartu, Estonia (Presenting author)

**Keywords:** Burial, Late Bronze Age, Osteology

**Presentation Preference - Oral**

The Late Bronze Age (around 1200–500 BC) in Estonia is characterized by the emergence of stone-cist graves. The above ground round structures with central cist(s) and one or more exterior circular walls were mainly erected in the coastal area of Estonia. They 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 contexts and heavily fragmented osteological remains of 3–4 individuals buried per cist were recovered. We 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 Maimberg, Gustav, Uppsala University, Uppsala, Sweden (Presenting author)

**Keywords:** Infant funerary, 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 children, infants and childhood. 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 las 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 Bronze Age graves there have actually contained infants - those in the cairn at Hau, on northern Gotland, have been I4C-dated to High Medieval Period.

**TH4-11 Abstract 14**

**Human remains from the Medieval and Early Modern Gallows hill in Tallinn, Estonia**

**Author:** PhD student Malve, Martin, University of Tartu, Tartu, Estonia (Presenting author)

**Co-author(s):** Wärmelander, Sebastian K. T. S., Stockholm University, Stockholm, Sweden

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Examining skeletons from the Swedish 17th century flagship Kronan

**Author:** Dr. Wärmländer, Sebastian, Stockholm University, Stockholm, Sweden (Presenting author)

**Keywords:** bioarchaeology, craniometrics, skeletal analysis

At the time of its sinking in 1676, the Swedish flagship Kronan was one of the largest seagoing vessels in the world. With its sinking, Sweden lost an important naval battle in the Scanian War, and more than 800 individuals lost their lives in the Baltic Sea. In addition to the 500 sailors, the ship carried 350 infantrymen bound for the Swedish provinces in present-day Germany. The geographic origins of these individuals have so far not been investigated. In this study, geographic affinities of 24 human skulls recovered from the Kronan wreck were investigated through the analysis of metric and non-metric cranial data. Although the results indicate that many of the individuals aboard the ship were Scandinavian, a number of individuals exhibit cranial and dental characteristics inconsistent with European ancestry. These findings provide new information about the demographics of the Swedish military community during the seventeenth century. In addition, the study demonstrates the limitations of current craniometric databases for distinguishing different populations around the Baltic Sea, a situation that will hopefully improve as reference data for these populations becomes available in the future.

Hard lives by land and sea: Vertebral pathologies as manual labour indicators in a comparison of Napoleon's soldiers' and Nelson's sailors' skeletons

**Author:** Savulyte, Sandra, Bournemouth, United Kingdom (Presenting author)

**Keywords:** bioarchaeology, craniometrics, skeletal analysis

During an excavation in Vilnius in 2001, a mass grave was uncovered containing over 3000 individuals, later identified as Napoleon's soldiers from his unsuccessful 1812 campaign against the Russian Empire. In 2007 the burial ground of the former Royal Naval Hospital was excavated in Plymouth, UK. The graves that were excavated contained more than 150 British sailors dating from broadly the same period as the Vilnius mass grave. These two excavations therefore provide an excellent opportunity to compare broadly contemporaneous groups of servicemen that are very similar and at the same time very different.

The current project focuses particularly on spinal pathology and the respective effects that different kinds of manual labour might have had on individuals from the two groups studied. Whilst both groups are likely to have had rigorous demands placed on them by their respective occupations, the current study considers the extent to which varying kinds of habitual activities will have produced different patterns of alteration and pathological responses in this crucial part of the skeleton.
TH4-12 Abstract 01
The Scandinavian influence upon Western Latvia: the case study of Grobiņa Archaeological Complex
Author - MA Santa, Jansone, University of Latvia, Riga, Latvia (Presenting author)
Keywords: Curonians, Grobin, Scandinaivians
Presentation Preference - Oral
The increasing attention has been drawn to the Scandinavian expansions in the Viking Age, while leaving aside earlier period, which laid the foundations of future character of the Viking Age. The main aim of the paper is to consider the role and meaning of Grobiņa, the late prehistoric Western Latvia and entire Eastern Baltic region, analysing character of the Scandanavian colony and the mutual relations between colonists and Curonians. The study uses both written and archaeological sources.

TH4-12 Abstract 02
The cemetery of Linkuhnen and the cultural exchange between Western Balts in the first millennium
Author - Dr. Jahn, Christoph, Museum für Vor- und Frühgeschichte Berlin, Berlin, Germany (Presenting author)
Keywords: Chronology, Migration Period, Nemunas
Presentation Preference - Oral
The cemetery of Linkuhnen at the Nemunas River is best known for the large number of swords and other weapons from the Viking Age. Only little attention has been paid to the various finds from the Roman Iron Age and Migration Period in Linkuhnen. The analysis and re-evaluation of the archaeological objects and archival material from excavations between 1928 and 1939 allow for a new perspective on this important site. The reconstruction of the excavation results provides a comprehensive understanding of the chronological situation at Linkuhnen for the first time and show a continuous usage of the cemetery from the Roman Iron Age and the Migration Period to the Viking Age (2-11th century AD) with almost 500 burials and over 5000 grave goods. The finds from the Migration Period are indicators for long-distance trade and communication between Prussians, Scalvians, Curonians and other archaeological cultures in the first millennium. The presentation will offer a closer look at the musls in Linkuhnen and an overview of the changing cultural relationships to the neighbouring areas during the 1000 years of occupancy of the site. The interpretation of Linkuhnen is closely related to its geographic position close to the Nemunas River and the alteration of the course of the Nemunas at the end of the first millennium.

TH4-12 Abstract 03
Preliminary considerations on the technological variation within Baltic ware pottery
Author - MA Sulte, Alise, National History Museum of Latvia, Riga, Latvia (Presenting author)
Keywords: Baltic ware, Latvia, Potters’ wheel
Presentation Preference - Oral
The potter’s wheel is one of the principal technological innovations of the Late Iron Age (10th – 13th century). Through Baltic ware pottery, its use rapidly spreads across the Baltic Sea region. This paper focuses on the variability of pottery-forming techniques in Latvia during the adoption of the slowly rotating potter’s wheel and Baltic ware pottery. As indicated by archaeological material, both Eastern and Western Latvia are part of the Baltic Sea trade network. It is the path along which potters spread their goods and skills. However, when conducting a more detailed analysis of Baltic ware, the use of potters’ wheel is subject to distinct local variations. In the East, there appears to be a sudden switch from the previous pottery tradition to the new Baltic ware. There is little to no interlaying period of varying hybrid-forms. It seems that the technology and the skills for using it were acquired almost at the same time. In the West the potters’ wheel is taken up only partly, preserving previous pottery production methods and using them alongside the new methods. The hand-made manufacturing tradition was not forgotten. For instance, hand-made pottery was still produced until the fourteenth century. This paper aims to show a different pattern of relation of the local people to the changing world around them through the acquisition of Baltic ware and the potter’s wheel. The differences of taking up the new technological innovation could not have originated just from differing placement within the trade network. Both regions have equal access to the new technology. However while some take it up rapidly others seem more hesitant. The braking and remaining of thousands of years old pottery production traditions was influenced by longstanding socio-economic paradigms. Further discussion of pottery variation might reveal some important playing factors within these paradigms.
of sword knots and belts, spurs for riding and buckles of spurs, arms like the sword from the Balga castle surroundings and sword hilt from Marienwerder) decorated with geometrical and zoomorphic ornament like image of horned animals ("goats of Perkūnas god") made in unusual for Prussia style with using wire and foil from different metals. Some researchers had suppositions about their eastern origin connected with the movement of the Mongols in Eastern Europe in the XIII century. Such supposition has its reason considering geography of findings (Morava, Poland, Katyngrad region (East Prussia), Belgrodi region). New findings of this stage goods (belt plates, spurs) are represented in materials from burial ground in Fedorovo, Ruvnina Dolna (Unterplenen, Równina Dolna, Poland), Prudnoi/Alt Wohlau, Simonischken, Klincovka (Wilkaia, Kuntstrauchi), Rybachy (Stangenwalde). Such artifacts are also known in Belorussia and Lithuania that can be explained by the migration of the population West-Baltic region caused by crusader expansion. Numerous decor elements with Christianity (different images crosses) appeared in this period. This stage is characterized by the reduction of products plated with silver that was in active usage at the first stage. Mass use of these technologies passed away among Prussian jewelers. In this period such goods served as status indicating jewelry of Prussian nobles. This jewelry tradition passed away completely perhaps under the influence of European fashion after absolute conquest of Prussian tribes by the Teutonic Order.

TH4-12 Abstract 06
Western Balts after the Vikings and just before the Crusades.
Finalisation of the post-doc project
Author - Dr. Shiroukhov, Roman, Vilnius University, Vilnius, Lithuania (Presenting author)
Keywords: Archival data, Chronology, Western balts
Presentation Preference - Oral

During the several last years of preparation of PhD thesis about Prussians and Curonians contacts in the 10/11th-13th centuries and the Post-doc project, dedicated to the Western Balts social, economical and cultural development in the described period, the unique archaeological archives and artefacts database of the 37th scientific institutions from the 8th countries has been collected. Following the tradition of the transregional research of the Western Balts, established by Carl Engel and other East Prussian archaeologists and working in all the major archaeological collections of the Baltic sea region, connected to the Western Balts culture of the late 10th-13th centuries, with a particular consideration on former “Prussia Sammlung”, the picture of development of the whole South-East Baltic region on the basis of archaeological data was elaborated. Considering this, catalogues, maps and analytics for the each general artefact type, burial custom and social (cemeteries based) structure were prepared and partially published. The very first draft of the book reviewed by 2 senior researchers was sent to the Research Council of Lithuania in March 2015. The basis of the draft represents the dissertation, significantly supplemented with data collected during the implementation of a post-doc project in 2013-2015, as well as some new ideas and theories about the development of the South-East region of the Baltic Sea in the 10-13th centuries. The final stage of the preparation of the post-doc project book will be presented at the session.

TH4-12 Abstract 07
A Heraclius solidus - an Avar find from Sambia
Author - Dr. Zapolska, Anna, Institute of Archaeology, Warszawa, Poland (Presenting author)
Keywords: Avars, Heraclius, solidus
Presentation Preference - Oral

In 80’ of 20th century a unique find was made in Sambian Peninsula. During excavations a Heraclius solidus was discovered – the only so far Byzantine coin from this region. Gold coins of Heraclius were minted in big numbers and served as source of tribute payment for Avars. The time of paying these tributes to Khaganat was very short – it lasted only few years – as long as Avars threatened to the Empire’s borders. Even though there are numerous finds of these coins in Lower and Middle Danube, in Carpathian Basin and further to the north up to Middle and Lower Rhine. One such coin was found on Polish lands. The one from Sambia is the farthestmost find and isolated at the same time. The artifacts, which can be linked with Avar influence found within West Balts Culture Circle are rare. Among them there are mostly belt fittings, elements of harness and sporadically parts of jewelry. The coin then arises suspicions and questions on it’s origin, time, ways and circumstances of the influx.

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.
Science and multidisciplinarity in archaeology

Advancement in the use and application of scientific techniques and methodologies in archaeology have significantly altered and contributed to our knowledge of the past. Many of the greatest examples of the research reconstructions of the past have been achieved through the integrated application of multidisciplinary methodologies. This theme seeks contributions that examine how the combination of interdisciplinary research methodologies have affected and influenced development in all areas of archaeology. Debates on both the advantages and the limitations of scientific techniques are invited, together with case study examples that illustrate the improvement of quality and reliability in particular analytical methods.

Closely related to long-standing scientific methodologies in archaeology, bioarchaeology is increasingly presenting a new focus on application of a variety of biological research platforms to our understanding of the past. Employing new technologies, new methodologies and new knowledge from biomedicine, chemistry, physics and biomolecular research, these complement our understanding of the past by adding a “biological dimension” to archaeology. In this theme, we call for contributions and discussion on various aspects of human and animal agency and interaction (morphological variability, growth and development, senescence, diseases, diets) as well as human and animal population studies (paleodemography, genetics).

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TH5-01 Abstract 02
Applying ED-XRF, LA-ICP-MS and PIXE analyses to characterise Pyrenean cherts. Potentials and limits

Author - PostDoc Sánchez de la Torre, Marta
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Co-author(s) - Dubemont, Stéphan, Université Bordeaux Montaigne, Pessac Cedex, France
Keywords: chert characterization, geochemistry, lithic raw materials procurement
Presentation Preference - Oral

An intense fastwork focusing on the definition and characterization of chert sources outcropping in the Pyrenees (SW Europe) was recently done. This work was linked to a PhD research concentrated in determining Magdalenian human mobility in the Pyrenees through the analysis of chert tools. This study contemplated a textural, petrographic and microfaunaeontological characterization of chert using macroscopic and microscopic methods. However, results showed that these techniques had some limitations regarding the existent similarity between several formations. Thus, recovering the previous data obtained after the textural, petrographic and microfaunaeontological characterization of several Pyrenean chert formations, we applied some geo-chemical methods. The aim was to observe the potential these methods could have to characterize chert and, by this way, solving archaeological questions. We would like to present in this communication the potentials and limitations of the application of energy-dispersive X-ray fluorescence (ED-XRF), laser ablation-inductively coupled plasma-mass spectrometry (LA-ICP-MS) and particle-induced X-ray emission (PIXE) to chert characterization.


TH5-01 Abstract 03
Source prehistoric artefacts from Malta using new non-destructive techniques

Author - Chatzimpinigou, Petros, University of Cambridge, Cambridge, United Kingdom (Presenting author)
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Keywords: Chert, Malta, Surveying
Presentation Preference - Oral

The purpose of this paper is to present petrological/geochemical techniques (e.g. LA-ICP-MS) which can contribute to the investigation into the origin of chert assemblages found in prehistoric sites in Maltese islands. This research is part of a greater project (FRA05861) investigating the extent to which these islands were laboratories of human activity and, in particular, their degree of connectivity with neighbouring areas. The project focuses on the Stone Temples on Malta (between 4th and 3rd millennia BC) and identifies the circumstances under which these unique monuments were built. Although these stone artefacts have been studied in the past, the research on their sources has been inconclusive. The advantages of these techniques are: their great accuracy, the speed with which results are obtained and, most importantly, they are non-destructive. They are considered perfect for identifying the mineralogical and geochemical context of rock samples. These specific characteristics, combined together, can be great indicators of the origin of these chert assemblages. Finally, the main principles, functions, equipment and limitations of these techniques will be demonstrated. Secondly, preliminary results from both chert assemblages and chert outcrops from Maltese islands will be presented. Moreover, this paper will also show how the results should be processed in order to obtain the necessary and useful information in sourcing chert artefacts. Finally, a comparison will be made between these techniques and those used in similar research in western Greece.

TH5-01 Abstract 04
Renewed petrographical and geochemical studies of flint from secondary deposits: Belgian case study

Author - Dr. Moreau, Luc, McDonald Institute for Archaeological Research, University of Cambridge, Cambridge, United Kingdom (Presenting author)
Co-author(s) - Vlondert, Paul, B. Ivarde-le-Dames, France
Keywords: fission track, heating experiments, Infrared spectroscopy
Presentation Preference - Oral

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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 biotopes ranging from boreal forest to tundra conditions, home to both Neanderthals and the large fauna that they hunted. This study is focused within the Middle Palaolithic of the area; a time period represented well in the western Channel for example at large sites such as La Cotte de St. Brelade, Jersey. It aims to shed light on the now largely submerged Neanderthal resource base by reconstructing procurement of their preferred raw material, Flint (here referring to silicaceous rock of Cretaceous age). On the Continental Shelf we know that primary bedrock flint was only likely available from several small chalk outcrops to the north of Jersey, whilst secondary flint outcrops were present in rocky beaches and carried by nearby palaeorivers. These flint pebbles, removed from their original context, are very variable with thick, pitted, cortex and visible inclusions, deriving from multiple parent sites. This research focuses on artefacts within the La Cotte de St. Brelade assemblage that have likely been procured from a primary bedrock origin. At this stage these artefacts are identified macroscopically by the presence of thin chalky cortex and the fine-grained homogeneous nature of the flint matrix. This project investigates the geochemical signature of these flint objects with
Erratic Flint from Poland. Preliminary results of petrographic and geochemical analyses

Author: - Dr. Sobociński-Tabaka, Iwona, Centre for Prehistoric and Medieval Studies in Poznań, Institute of Archaeology, Poznań, Poland (Presenting author)
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Co-author(s): - Siuda, R., Faculty of Geology Address University of Warsaw, Warsaw, Poland

Keywords: erratic flint, geochemical analysis, petrologic analysis

Presentation Preference - Oral

Archaeological sites in Poland, and elsewhere in Western Europe, document that flint and chert have a long history of use. The most commonly knapped raw materials throughout the Stone Age and Early Bronze Age, flints from a number of different sources were used for making tools and weapons, fire-lighting tools, etc. When studying prehistoric flint, one of the more interesting issues to be examined is the connection between deposits exploited at the time and the tools recorded at archaeological sites. By following the spread and distribution of individual 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 silica rocks to be highly prized by ancient communities also mean that it is very difficult to determine whether an archaeological site is a deposit or a primary deposit. This is why researchers try to describe the diagnostic features of silica rocks using various petrographic and geochemical methods. The area of the Wistula basin is rich in silica rocks and it contains deposits of several varieties of flint. A ‘chocolate’ grey-white spotted and striped (banded) variety, Volhynian flint on its eastern borders and erratic flint, occurring mostly in secondary deposits, were all widely used in prehistoric times. Almost all types of them have been examined by using both macroscopic and petrographic-geochemical methods to define their diagnostic features.

Flint has never been a subject of a separate macroscopic analysis. In general, two main types of Cretaceous flint have been distinguished: the so-called variant A – bluish-grey nodules, and variant B – Pomeranian flint in the form of pebbles (the so-called swallow egg), yellowish-brown or pink in colour.

The aim of the paper is to present the preliminary results of petrographic and geochemical analyses of erratic flint found throughout present-day Poland. Three different methods have been applied: electron probe micro analysis (EPMA), scanning electron 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 sample of erratic flint specimens needs to be analysed to determine the range of chemical composition they contain.

Acknowledgements: The investigations were funded by the National Science Centre in Poland (PRELUDIUM 2; UMO-2011/01/N/H5S/03973).

Lithic raw material from eastern part of Polish Carpathians. Results of preliminary research

Author: - Prof. Pelsiak, Andrzej, Institute of Archaeology University of Rzeszów, Rzeszów, Poland (Presenting author)
Co-author(s): - Dr. Trąbska, Joanna, Institute of Archaeology University of Rzeszów, Rzeszów, Poland

Keywords: lithic raw material, macroscopic and petrographic characteristics

Presentation Preference - Oral

This presentation refers to the lithic raw material exploitations in the eastern part of Polish Carpathians. The surface surveys and LiDAR analysis carried out in 2013-2016 on this area resulted in discovery of new resources of various lithic raw material used in the prehistory: silicified sandstones, quartzite, siliceous marls, menilite hornstones, flynch radicants, biotite-flints, light-brown tabular hornstone. As suggested from artefacts found on the sites in Poland and Slovakia in various chronological contexts these lithics were exploited both for local and much wider use. Identification of raw material itself as well as the outcrops of silicified rocks is crucial issue in the study of prehistoric relations between prehistoric communities.

The purpose of our work is to present the primary macroscopic and petrographic characteristics of various variants of silicified sandstones, quartzite, siliceous marls, hornstones, flynch radicants and flints from the Eastern Carpathians as well as their natural sources. We point at distinctive features of macroscopicity similar or almost identical raw materials that allow to discern stone artefacts and suggest their source area.

Flint studies for applications in archaeology – procedures and investigation sequence

Author: - Dr. Zarina, Liga, University of Latvia, Riga, Latvia (Presenting author)
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Keywords: flint and chert, research procedures, stone tools

Presentation Preference - Oral

During the Palaeolithic flint and chert besides other stone materials were widely used for making tools. Because of numerous finds, flint becomes one of the most important information sources regarding prehistoric society for evaluation of ancient skills, knowledge and innovations. Therefore needs for well-developed typology of tools and updated laboratory methods for raw material identification and characterization can be recognized. Mentioned above leads to evaluation and future development of tools grouping and classification still visually based to be supplemented or replaced by tools morphometric analyses and numeric data analysis depending on research directions. In this respect specialized data coming from artefacts morphometric analysis can be used also for identification and characterization of used raw material, pointing, for example, to quality of the material for making tools, processing possibilities and traces of weathering. Current laboratory testing methods are well developed and available in most of the research centers and institutes, however, only few discoveries are done during following, and these case studies with limited potential to be applied in traditional archaeological studies. Most of reasons are related to limitations to use destructive methods, needs for pretreatment, size of sample, specific qualifications etc., but still the main complications are coming from natural diversity of stone material and connections to obtain comparable analytical data.

In the study geological samples of flint and chert besides from sites in Northern Europe as well as archaeological samples collected during Institute of Latvian History excavations in the Stocene Neolithic settlement and Latvia Mesolithic settlement were included. The research procedure was developed for obtaining comparable qualitative data. In the study macroscopic and microscopic assessments in visible and ultraviolet light were carried out, and for chemical composition detection the X-ray fluorescence spectrometry (XRF) method was used.

Our studies concentrate needs for certain procedure and conditions to obtain analytical data which satisfy regional flint tools studies regarding source material localization and tracing the transportation routes.

Cultural contacts during the late Boreal and early Atlantic by the Baltic coast of Sweden

Author: - Kjällquist, Mathilda, National Historical Museums, Sweden, Lund, Sweden (Presenting author)

Presentation Preference - Oral

What were the directions of the social and cultural routes of contact, during the late Boreal and early Atlantic in Southern Scandinavia? This study is based on technological traditions in bone and lithic material, and stratigraphic analyses from human teeth. The main material comes from Norje Sumanasund, a well preserved settlement covered by Littorina grytta, excavated in 2011. The site lies by the outlet of a former lake, 2 km from the Baltic coast in Southeastern Sweden. It is among the first coastal settlements from the Maglemosian time period excavated in Southern Scandinavia. The settlement has been inhabited repeatedly during most of the year, and the finds are extensive, including both a variant lithic material – mainly Kristianstad flint, Senonian flint and quartz – suggests connections in both northbound and southbound directions. Some characteristics of the lithic blade technology and the bone technology also suggest a connection with traditions from the east side of the Baltic, while bone ornaments and Sverdrup triangles show some similarities with the Maglemosian tradition. The results from strontium analyses of 12 bone samples strengthen the picture of connections between people from different geographic areas.
The rise and development of brick production in Vilnius, the capital of the former Grand Duchy of Lithuania, was inspired as strategically important craft. The production of bricks has been changing and improving during more than seven centuries. Therefore brick is an important source providing the knowledge about the technical development, production potential and cultural influence during different periods. The evaluation of physical and chemical properties of bricks would enable us to judge about the technological standards of Vilnius bricks, deviations from them and their reasons. The promising investigation methods of the old bricks are related to applied methods of exact sciences. One of them is geochemical method. The geochemical data statistically grouped using Ward’s hierarchical clustering (Barcevičius, Taršiškauskaitė, 2015, Archaeologia Lituanica, v.16, p.45-62) enables to hypothesize that: a) in certain chronological periods the material for construction of buildings and production of bricks could be extracted from the same or adjacent clay deposits similar in mineral composition; b) there existed brick production technologies specific for that period. So, it is possible to try to create peculiar “multivariate recalibration matrices” with as many as possible dated or characterised by other parameters samples. According to them it would be possible to determine at least approximate data of the newly found interesting brick of unknown chronology or to compare other features.

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

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

### TH5-01 Abstract 12

**Micromorphology of flint from Mesolithic–Early Neolithic site Zamostje 2 via thin-section analysis**

**Author:** Dr. Kulkova, Marianna, Herzen State University, St. Petersburg, Russian Federation (Presenting author)

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**Keywords:** Mesolithic, Early Neolithic, petrography of flint, raw materials, Zamostje 2 site

**Presentation Preference:** Poster

Site Zamostje 2 is situated in the northern part of the Moscow district on the Dubna River (Russia). The site has yielded cultural layers of the late Mesolithic and early Neolithic with pottery and dated to the time between the beginning of the 7th to the middle of the 6th millennium cal BC. The flint tools which were found inside the Mesolithic–Early Neolithic cultural horizons have many common features. Mainly the same flint sources were used for them. Micromorphology of flint samples including the composition and structure of flint was examined by means of thin-section analysis. Thin sections were investigated at low magnification between x10 and x100, as higher magnifications observe individual features, which may not be helpful for structural interpretation. Using both plane- and cross-polarised light highlights the textural and structural characteristics of the sample. The microstructural, mineralogical and micropaleontological characteristics allow to divide several flint types and suggest their geological age. The most common is the stone tools for which was used the Carbon flint. There are several samples of Jura and Cretaceous ages. Carbon flint was found in the site as pieces of rounded pebbles. The outcrops of flint sources in this region are covered by Quaternary deposits. The Quaternary deposits in this area are presented by the Upper Volga outwash alluvial lowland with the depth of about 100 m. Lowland transect to Kamsko. Drimine moraine-erosion ridge. We suppose that the main raw sources are the alluvial and moraine deposits of Quaternary age. It is possible also that some samples from flint of Cretaceous age were import items.
TH5-02

UNRAVELLING THE FORMATION PROCESSES OF THE ARCHAEOLOGICAL RECORD BY INTEGRATING ENVIRONMENTAL ARCHAEOLOGY AND TRADITIONAL FIELD EXCAVATION

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

Faculty of Philology, Room 92

Author - Roxana, Baranewa, University of Reading, Reading, United Kingdom (Presenting author)

Co-author(s) - Wouters, Barbara, Vrije Universiteit Brussel, Brussels, Belgium

Co-author(s) - Dr. Orton, David, University of York, York, United Kingdom

Co-author(s) - Dr. Reilly, Eileen, University College Dublin, Dublin, Ireland

Co-author(s) - McParland, Hayley, University of York, York, United Kingdom

Keywords: Environmental archaeology, Site formation processes, Taphonomy

Presentation Preference - Regular session

In 1987 Michael Schiffer published the hugely influential ‘Formation Processes of the Archaeological Record’, which has continued to be consulted to interpret the biographies of archaeological materials, the formation of refuse and refuse assemblages, the spatial and diachronic development of archaeological sites, and to study sites in the context of their hinterlands. On the approach to the 30th anniversary of Schiffer’s publication, this session aims to examine the contribution that environmental archaeology, and its associated specialisms such as archaeobotany, geoarchaeology, palaeoentomology, palynology, and zooarchaeology, has made to advance our interpretations of formation processes on archaeological sites. We welcome submissions from all specialisms of environmental archaeology, as well as from archaeologists in other fields, particularly those who apply integrated approaches and/or experimentation to understand the taphonomy of data assemblages, the formation and reworking of stratigraphy, and the diagenetic processes that affect archaeological materials within their depositional context.

TH5-02 Abstract 01

A multi-disciplinary approach to formation and abandonment processes within later prehistoric houses

Author - Dr. Romanikiewicz, Tanja, University of Edinburgh, Edinburgh, United Kingdom (Presenting author)

Co-author(s) - Dr. Hunter, Fraser, National Museums Scotland, Edinburgh, United Kingdom

Keywords: Abandonment processes, architectural analysis, Prehistoric building materials

Presentation Preference - Oral

From the Bronze Age to the late Iron Age people in Britain lived in roundhouses. They generally kept them clean which created wear, brush and cut patterns on the soft lowland soils. Later truncation left little remains behind apart from low fairly fragmented artefacts, the fills of negative features such as pits and postholes which can contain deliberate structured deposits, and the sediment trappled in the use-ware depressions. The material recovered from these hollows or the top fills of features is often ignored as representing redeposited material that can yield little securely stratified information. These deposits are either midden-rich, some showing a degree of leaching, or represent a bulk of homogenised but often artifically sterile infill.

This paper is interested not only in the formation of these hollows but the nature of their infills and the research potential of such redeposited ‘rubblish’. The multi-disciplinary approach based on recent excavations in Scotland uses micro-morphology, architectural analysis of structure and building materials and experimental reconstructions from Britain and beyond. Results suggest that the accumulated infills in the worn hollows are unlikely to be contemporary with the final house occupation, but represent post-abandonment processes not linked to the particular structure, but to wider site activities. The homogeneous bulk of material infill represents the remains of the houses’ superstructures and is studied at macro- and micro-levels to identify their organic building materials such as timber, turf and earth which are usually assumed to be ‘lost’. Interpretations working with such redeposited material move away from trying to understand each structure on a site individually and towards studying these within a model that postulates a cyclical site use, in which individual features and materials change function and substance because they are interlinked in larger economic and cultural processes.

TH5-02 Abstract 02

Interpreting silos deposits in medieval Mediterranean France: archaeobotanical approach

Author - Dr. Ros, Jerome, UMR7209, CNRS/MNHN, Paris, France (Presenting author)

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Keywords: archaeobotany, medieval Mediterranean France, silos

Presentation Preference - Oral

For the last twenty years, large-scale public works have helped to improve medieval archaeological research in Mediterranean southern France. The multipaticion of rescue excavations has led to the discovery of several large ensiling areas, some of them formed by thousands of silos. The discovery of such structures systematically raises the archaeobotanists the issue of the identification of the type of deposits excavated (in primary or secondary position), and, for primary deposits, the question of the type of products ensiled.

The discovery of storage in primary position remained uncommon and was, so far, poorly documented by archaeobotany in this area. New archaeobotanical investigations on several sites in Languedoc-Roussillon allows us to present a review of the results on storage practices in this region, and a discussion on the methods by which archaeobotany can enlighten the existence of primary deposits in ensiling areas. In a second time, we will discuss the interest of studying deposits in secondary position to document several questions, such as the identification of other agricultural practices not related to the storage itself, or the reconstitution of past environment exploited.

TH5-02 Abstract 03

Exploring house (after)lives at Gatalhöyük West via microstratigraphy and animal bone taphonomy

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Keywords: bone taphonomy, formation processes, microstratigraphy

Presentation Preference - Oral

This paper presents recent work on the Gatalhöyük West Mound (Turkey, ca. 5900-5800 BC), combining microstratigraphy and animal bone taphonomy to explore the use lives of buildings. Research on architectural stratigraphy and particularly on formation processes of infill deposits has demonstrated that buildings underwent several phases of use, abandonment and modification, and that at various stages of their lives they were used for different activities and purposes that included storage, refuse disposal and burial. While stratigraphy provides a relative sequence of events, animal bone taphonomy provides data on the nature and rate of deposit formation processes, allowing us to begin to approach the duration of each stage in the buildings’ lives. These observations can be linked with interpretations of social processes during a phase of Anatolian prehistory that saw societies transform to become more mobile, fluid, and competitive.

TH5-02 Abstract 04

When someone walked in these buildings (geoarchaeology of soils)

Author - Cammas, Cecilia, INRAP, Paris, France (Presenting author)

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Keywords: geoarchaeology, huts, Middle Ages

Presentation Preference - Oral

The Medieval period was documented for a long time by texts and iconography. These studies brought numerous testimonies which tended to present the living conditions of the noble persons and the clerks. For more than 30 years, in France, the archaeological research has totally changed this incomplete vision of the period. So, the development of the preventive archaeology, and more particularly on huge excavations called in French ‘Grands Travaux’ lighted numerous data and artefacts of the beginning of the medieval period.

The national institute Inrap which was in charge of many of these projects, operated numerous related disciplines of the archaeology such as geoarchaeology, archeozoology, archaeobotany. It was in particular possible to make experiments, such as they were able to be put forward in particular on plan of the Channel relaying the river Saine and the North of Europe (code CSINE). The poster presented here shows the results which were obtained on the same excavation fields of the North of France within the framework of a micromorphological study of the Early Medieval stuff. We especially focused on huts called ‘sunken featured buildings’. It was set up that a particular strategy of sampling, which aims at taking into account the allowed time, as well as the average scientists and the available human being. All the archaeological units of this type having been searched and
taken, it was set up an index form of statement taking into account paleo-environmental comments and studies. It is to find easily samples with the aim of the study in laboratory. Every sample was coded and inventoried. A ceaseless round trip between field data (sediments and drawings/photos) and the data obtained by the micromorphological study, as well as the overall of the other disciplines allowed to document very finely structures which seemed in prior homogenous.

So, the studies led by the archaeologists during works of preventive archaeology allow to put up several scientific protocols. The BFIs, structures in prior without notable interest, give a lot of information about the everyday life of the populations of the beginning of the Middle Ages in the North of France. Thanks to the interdisciplinary studies led everywhere, it is today possible to have a more just vision of the activities of populations we discover in archaeological field.

**TH5-02 Abstract 05**

**Cesspits and the P-P-P-P-problem:**

**The pitfall of the Pompeii premise and the palimpsest**

Author - Dr. Van Oosten, Noor, Leiden University, Amersfoort, Netherlands (Presenting author)

**Keywords:** cesspits, palimpsest, Pompeii premise

**Presentation Preference - Oral**

Given their high yield of artefacts and ecofacts, cesspits are afforded much time and effort in urban archaeology. While historical sources reveal that cesspits were emptied at regular intervals every few years, archaeologists still treat cesspits as closed contexts where artefacts lie 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 be the termus 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.

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**TH5-02 Abstract 06**

**Reinterpreting pits and post-holes:**

**Archaeobotany as a tool to access site formation processes**

Author - Dr. Tereza, João, CIBIO - Research Center in Biodiversity and Genetic Resources (Univ. of Porto), Porto, Portugal (Presenting author)

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**Keywords:** Archaeobotany, Formation Processes, Pits

**Presentation Preference - Oral**

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 has 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 archaeological 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). Finally we consider that the integration of archaeobotanical analysis with further archaeological evidences is crucial to better understand depositional processes and to distinguish between primary and secondary waste (Schiffer 1987, LaMotta and Schiffer 1999) and even tertiary refuse (Fuller et al. 2014).


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**TH5-02 Abstract 08**

**Cooking pits, formation processes and democracy**

Author - Swedberg, Stig, Kulturminneskapet, Fältbacka, Sweden (Presenting author)

**Co-author(s) -** Öström, Annika, Kulturminneskapet, Fältbacka, Sweden

**Keywords:** Cooking pits, Democracy, Multi analysis

**Presentation Preference - Oral**

In a Scandinavian context cooking pits have often been thought to carry none or little information. This has resulted in cooking pits being excavated using simple methods, for instance by cutting a section with an excavating machine and only taking samples for radiocarbon dating. This often means that these structures or even whole sites are overlooked. Therefore, we will also discuss how such treatment leads to misunderstanding, reducing or even excluding several aspects of prehistoric society in archaeological interpretations.

Before the excavation of the site Tarum 1821 a compilation was performed of the cooking pits that had been excavated in the local area. The interpretation of the site was compared with what kind of analysis that had been carried out. There were a clear correlation between a ritualistic interpretation and fewer analyses. Moreover, it became obvious that the different theoretical frameworks provide distinct perspectives regarding the archaeological contexts and the archaeobotanical assemblages, having a profound impact in the overall archaeological, palaeoecological and palaeoethnobotanical interpretations.
To solve this situation we created a strategy for the excavation. We measured the volume of large (bigger than 7 cm) and small (7 cm or less) firescracked 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 firescracked 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 pit depositions supports an even finer group. Finally the soil chemical results from the surface shows significant differences between the different types of structures regarding the activity areas around them. These areas were not detected in the field situation but are due to the analyses. The radio carbon datings shows that the site was occupied temporarily.

The site was situated at a distance from the nearest known water catchment. Our interpretation is that the site was an activity area and that it during at least three phases has been used for processing grain. It seems possible to compare this with historically known roasting activities. These were also performed separately from the settlements. It is an activity that is often associated with women, but the place was also known as a gathering point for others in the society.

By focusing more thoroughly on one type of structure we have been able to gain more understanding for it. We have also been able to discuss social organisation and democracy and thereby questions of interest for our society. The excavation is in itself an example of how to see democratically on different types of structures and sites.

TH5-02 Abstract 09
Transdisciplinary results of site formation processes in the wetland site Zug-Riedmatt (Switzerland)

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Keywords: archaeobotany, micromorphology, Neolithic

Presentation Preference - Oral

At Zug-Riedmatt, excellently preserved waterlogged organic layers were conserved in a depth of 6m, below the daftaic deposits of the river Lorze into Lake Zug. The layers have been accumulated during the Neolithic settlement activities between 3200 and 3100 cal BC. Even though only a small part of the site was excavated, an exceedingly dense recovery technique was used, ensuring that the site could be investigated in detail. Using a micromorphological and methodological approach, 79 profile columns were documented, sampled and separated into layers in an intensive cooperation between archaeobotany, palynology, micromorphology, archaeozoology, geochemistry and field archaeology.

All disciplines involved simultaneously analysed the same samples and actively exchanged their results, experiences and ideas. The aim is to understand layer formation and degradation processes from different perspectives with a focus on taphonomic questions. Our talk provides an insight into the transdisciplinary discussion of three profile columns regarding archaeobotany, palynology and micromorphology. The three columns cover the whole occupation layer of up to 1.3 m in thickness, which contains various sediment types. The interplay between lake and daftaic deposits, which overlap with anthropogenic settlement activities, shall be presented. This micromorphological approach shows that complex, hard to solve questions emerge, which have to be discussed in detail between the involved disciplines.

TH5-02 Abstract 10
Formation processes related to foragers in tropical forests

Author - Dr. Friesem, David, University of Cambridge, Cambridge, United Kingdom (Presenting author)

Keywords: Foragers, Formation Processes, Tropical Forests

Presentation Preference - Oral

Although an important habitat for human societies, the study of archaeological site formation in tropical forests has been less studied compared to temperate and arid environments. Nonetheless, in addition to environmental factors, human behavior plays a significant role in the formation of the archaeological record. This paper focuses on the study of archaeological site formation processes related to forager ways of living in a tropical forest environment. It presents a geo-anthromorphological case study from South India where an integrated approach involved long-term ethnoarchaeology, 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 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 sedimentological and phytoanalysis and soil micromorphology. The results of the geoarchaeological analyses exhibit the environmental post-depositional processes occurring in tropical forests, mainly characterized by humid 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 all the different scales of the archaeological record can successfully reconstruct human behavior and the formation processes of archaeological sites.
In this paper we will explore the depositional, post-depositional and current land use processes that have resulted in the present situation and the expression of the surface site as recorded in the archaeological field survey. We will show how the integration of geo-archaeological and geophysical work has provided us with a completely different view on the formation of sites like RB73, and of types of landscape exploitation in these Apennine upland valleys.

THS-02 Abstract 13

Unravelling the formation process: re-excavating stratigraphy beneath the temples of Malta

Author - Prof. Malone, Caroline, Queen's University Belfast, Belfast, United Kingdom (Presenting author)
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Keywords: Antiquarian, Malta, Temples
Presentation Preference - Oral

The great megalithic temples of Malta were first examined in a systematic manner in the early years of the 20th century by antiquarian archaeologists. Thomas Ashley and Eric Peat from the UK joined the team of Stewart on Malta in the first properly recorded excavations, and their published records provide an indescribable level of detail. A century later, as part of the ERC FRAGUS project, three temple sites have been re-examined, in the quest for new samples for dating and palaeoenvironmental data, and in doing so have reinterpreted the work of these earlier scholars. This paper reviews how archaeological approaches to megalithic prehistoric sites have changed over a century by drawing some surprising conclusions about the quality and the questions of these pioneers. The current study is employing a range of interdisciplinary approaches to develop and enhance the archaeological record through coordinated methodologies to extract the maximum information from the remains that remain.

THS-02 Abstract 14

Interdisciplinary research for unravelling the chronology of archaeological sites of Ulów (Poland)

Author - Dr. Mokul-dal Hoyo, Magdalena, W. Szafer Institute of Botany, Polish Academy of Sciences, Kraków, Poland (Presenting author)
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Keywords: Anthropology, Radiocarbon dating, SE Poland
Presentation Preference - Oral

A group of archaeological sites located near the village of Ulów in Central Roztocze (Lublin voivodeship, south-eastern Poland) was discovered by people using metal detectors when searching for military items from World War II. The first archaeological survey was carried out in 2001 and proved that an extensive forested area, considered as unsettled in prehistory, contained remains of prehistoric and early medieval settlements. The systematic excavation works began in 2002 and have been intensified since 2014, when a research project entitled “Roztocze - the ancient terra incognita” (Settlement micro-region in the area of Ulów in Middle Roztocze in the prehistory and its background. Interdisciplinary studies) obtained financial support from the National Science Centre in Poland. The main object of the research is the reconstruction of processes behind prehistoric settlements in this area based on interdisciplinary investigations, including archaeological, anthropological, geomorphological, and archaeobotanical research, among others. In this area, the archaeological site 3 is especially interesting when taphonomic problems are considered. It was largely investigated and showed evidences of long-term occupation since the Late Palaeolithic and Mesolithic until the Middle Ages. However, the majority of archaeological features belong to the Late Neolithic Corded Ware culture and a cemetery of the Roman period Welbark culture. The taphonomic problems were initially revealed by anthracological studies, which documented a large variety of woody taxa and indicated preferences in their use in specific types of archaeological features. A group of selected charcoal samples from the site were used for radiocarbon dating, especially those coming from various types of anatomical 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 firepits 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 soil dates related to the relative chronological framework that were found in the same grave. Also, radiocarbon dating indicated a much greater intensity of settlement dated to the early and late stages of the Middle Ages, which was not inferred by singular analysis of boundaries of the Corded Ware culture, complemented by radiocarbon dating, demonstrated taphonomical and chronological differences between original burials and areas that were disturbed in later periods. The results from the current study show that a full reconstruction of the different phases of prehistoric and early medieval complexes and settlement patterns is only possible by the implementation of a complementary and interdisciplinary approaches.

THS-02 Abstract 15

The Neolithic before Neolithic? The evidence of first farmers in south-western Slovakia

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Keywords: environment, Neolithic, pottery technology
Presentation Preference - Oral

The beginning of the Neolithic in south-western Slovakia was so far mainly studied from typological-chronological perspective. Most of the find assemblages come from the older rescue excavations, field surveys, stray finds or finds without reliable find circumstances. These factors and the lack of multidisciplinary approach did not allow researchers to study the neolithisation process in a more depth.

Recent discovery of a new Early Neolithic site in Santovka tries to fill in this gap. Site lies in south-western Slovakia on the northern outskirts of the Pannonian lowland, in the drainage basin of the creek By, which flows into Ipel. The constant monitoring of the site since 2012 and subsequent archaeological excavation with interdisciplinary approach shed a new light into the transition of Mesolithic and Neolithic. The presence of thermal springs led during the Quaternary to the accumulation of travertine mounds. The Holocene formation of travertine dammed the creek By and led to the accumulation of calcareous clay during the Early Holocene. The analysis of plant microremains and mollusks delivered by the Apennine alluvial network or Po river anabranching system.

In this paper we will explore the depositional, post-depositional and current land use processes that have resulted in the present situation and the expression of the surface site as recorded in the archaeological field survey. We will show how the integration of geo-archaeological and geophysical work has provided us with a completely different view on the formation of sites like RB73, and of types of landscape exploitation in these Apennine upland valleys.
Exceptional discovery was made in the stratigraphically older layer of calcareous clay, where unusual pottery was located. Radiocarbon dates of the organic temper from pottery correspond with the end of 7th and beginning of 6th millennium BC. The pottery is attributed to the Early Historic. 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 Stånevik mountains. The pottery is tempered with grass stems and leaves. Changes of the organic matter in pottery matrix show a very low firing temperature.

The uniqueness of the site lies in the stratified sedimentary sequence containing the Early Neolithic artifacts in limnic environment, which preserved material that would be otherwise irretrievably lost.

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**TH5-02 Abstract 17**

**Regional correlations of destruction layers using Earth’s magnetic field: The Levant case study**

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**Keywords**: Destruction layers, Paleomagnetism, Stratigraphic correlation

**Presentation Preference**: Oral

The temporal variations in Earth’s magnetic field have been recorded in fired artifacts and can provide independent tests for radiocarbon and typology. Cooling installations used continuously before particular calamities in different sites should show similar magnetization directions. If their constituent ferromagnetic minerals are appropriate for the method, the magnetization direction is measured with respect to the geographic north (declination) and the horizon (inclination). Correlation can be tested by inclination, declination, or both. We test correlations between ovens sampled in-situ within individual destruction layers at the mounds of Hazor, Megiddo, and Es-Safi covering Late Bronze and Iron Ages (13th-8th centuries BCE). During parts of that time, radiocarbon calibration severely limits temporal resolution of absolute dating. By contrast, the magnetic field in the Levant shows extreme fluctuations. The data supports the overall stratigraphic picture and demonstrate the potential of future studies to resolve some of the uncertainties and discrepancies between alternative chronologies.

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**TH5-02 Abstract 18**

**Applying silence and sound to environmental reconstruction: frameworks, applications, implications**

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**Co-author(s)** - Lindstrøm, Torill Christine, University of Bergen, Bergen, Norway

**Keywords**: archaeoacoustics, methodology, sounds, soundscapes

**Presentation Preference**: Oral

Culture and the Environment are noisy. The formation of sites within their environments is never quiet. However, the past is silent. It was not until the nineteenth century that one could hear sounds from the past. Admittedly, language-notation began about five millennia ago and music notation about a millennia and a half. But, even that is recent for human existence. Notations depict sound, but are not the sounds themselves. In 1977 Thomas Edison invented the phonograph, later to be developed into various sound recording technologies. Only then, did the sounds of the past become available to the present. We can listen to words spoken and music played long ago. But can we hear the sounds of prehistory? No, but to some extent we can reconstruct them, and at least record and measure the present soundscapes of archaeological sites and their environments. Such recordings can give us relevant clues about earlier soundscapes as well as helping us understand how sounds were part of the prehistoric environment and the formation processes of site creation. Thus, we believe we can add further information about the location and cultural (sound-producing) activities of earlier times. When combined and integrated, these pieces of information from various sources can help us to build reasonable valid descriptions, interpretations, and even reconstructions, of past sounds and soundscapes.

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**TH5-02 Abstract 19**

**Not separating wheat from chaff: considerations for differential recovery of charred plant remains**

**Author** - O’Meara, Don, Newcastle, United Kingdom (Presenting author)

**Keywords**: Archaeobotany, Recovery, Taphonomy

**Presentation Preference**: Oral

This presentation aims to highlight some of the taphonomic issues which may affect the recovery of charred archaeobotanical material from archaeological deposits. The basis of this presentation is data from 10 archaeological sites in Northern England where the rates of recovery from the washer and the heavy residue have been compared. In this region, finds of charred cereal remains may often be sparsely distributed in archaeological contexts, and will not meet the required number of elements recommended to conduct applications such as multivariate analysis. It is argued that due to differences in settlement patterns and geology the recovery of archaeobotanical remains in northern England is in many ways distinct to those in southern England. The presentation will discuss the differential recovery of chaff and grains that have been observed by the presenter, as well as the differential preservation and recovery of hazel nut shell. It highlights some of the methodological problems this creates when classifying sites as being ‘producer’ or ‘consumer’ sites, as well as broader debates such as the nature of wild and domestic plant consumption in prehistory. The presentation highlights the varied types of recovery from within a relatively small geographic area (England), and asks participants to consider how this might affect supranational, or transcontinental interpretations. Conclusions by presenting novel way in which a multidisciplinary approach to the recovery of charred plant remains could be used for both site interpretation by trying to identify activity areas via the integration of archaeological data with contextual information from excavation.

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**TH5-02 Abstract 20**

**Deciphering formation processes of the urban Dark Earth: a geoarchaeological approach**

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

**Co-author(s)** - Vrydaghs, L., Ball, T.B., Devos, Y., in press. Beyond redundancy and multiplicity. Integrating phytolith analysis and archaeopedology (graves from the Viking Age) in Ustedalen, Geilo, 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, a tundra plateau, for millennia. In this small pilot-project, we discovered unexpected sounds and interesting sound-qualities 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.

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**References**


TH5-02 Abstract 21
Plant macroremains as proxies to understand formation processes in lakeshore settlements

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Keywords: archaeobotanical, preservation parameters, wetland archaeology

Presentation Preference - Oral

Anthropogenic wetland sites are mainly characterized by the presence of archaeological artefacts and clusters of organic remains resulting from the dumping of food or other useful plant remains (incl. cultivars), accumulations of dung and other organic debris like leftovers of building activities. How formation processes affect the preservation of these remains and the degree of representativeness of the resulting data is still largely unknown.

A recently excavated Late Neolithic settlement phase at the site of Pankhaus Opar (Lake Zurich, Switzerland) offered the unique opportunity of sampling a well-preserved waterlogged layer that spread over 3000 m2. A systematic sampling strategy was conducted and an ambitious project funded by the SNF (Swiss National Science Foundation) was organized in order to approach several methodological and research issues, among which was the identification of relevant parameters in 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 our 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. 0.5 L) and ca. 120 small-volume samples (ca. 0.3 L). We developed specific quantification criteria that can be applied in a rapid yet informative way. The data were evaluated on the basis of ubiquity, and through qualitative evaluations of the spatial distribution of the variables (with GIS maps). The results seem to allow a clear distinction between well-preserved parts of the layer and eroded parts of the layer, including parts that were eroded in connection to lake influence in opposition to other erosive processes. These results make us suggest that such evaluations should continue to take place in the future if proper palaeoeconomic 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 most sites in Israel dating to the Iron Age (ca. 1150 to 600 BCE), and mostly associated with territorial conflict, as in conquest campaigns. A recent project is conducted at Tel Megido, a key Near Eastern archaeological site, in which a massive destruction event (Stratum VA of the late Iron Age II) is studied using a geoaarchaeological approach. Initial mineralogical analyses, using FTIR spectroscopy, identified clay 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 has 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 our 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. 0.5 L) and ca. 120 small-volume samples (ca. 0.3 L). We developed specific quantification criteria that can be applied in a rapid yet informative way. The data were evaluated on the basis of ubiquity, and through qualitative evaluations of the spatial distribution of the variables (with GIS maps). The results seem to allow a clear distinction between well-preserved parts of the layer and eroded parts of the layer, including parts that were eroded in connection to lake influence in opposition to other erosive processes. These results make us suggest that such evaluations should continue to take place in the future if proper palaeoeconomic 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-occupation 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 reconstitute its biography, to determine its level of residuality or to establish its chronology.

We believe, however, that the study of the formation of the archaeological record has not been developed as it might have been, either theoretically or methodologically. In fact, the works of reference continue to be those written by M.B. Schiffer in the last third of the 20th Century. This investigator introduced the concepts of “systemic context” (dynamic stage during which elements shared the culture of their societies and different processes of aggregation and elimination were produced) and “archaeological context” (state in which 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 deciphering tool of the archaeological record. For definition purposes, we will use 3 stages that are acknowledged in the lifecycle of any place (occupation, abandonment and post-abandonment), each of which comprises moreover different aggregation and reduction processes. Within the aggregation processes, we will pay special attention to pottery recovered in the archaeological context. In this respect, the manner in which artefacts are presented in the archaeological record constitutes one of the main instruments for identifying the depositional processes since these same processes contribute to the presence of pottery in a very different manner.

TH5-02 Abstract 24
The Archaeological Stratigraphic Sequences of the Vitava River Valley

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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 these layers on the left bank of the Vitava River in Prague (parts Sedlec, Dejvice and Bubeneč). We are talking about geomorphological temperate eastern slopes of the hills and foothills of the Upper Švýca height. Local stratigraphic sequence captures the settlement from the Paleolithic to the present. It often has the character of a coastal “Tail” and has generally polycyclic origin. According to the current knowledge on the riverine there is situated layer stratigraphy of the loess loams containing Upper Paleolithic finds and this layer is overlaid by Holocene layers composed mostly by the dark loams containing remains of archaeological cultures/from the Neolithic period to the present. Preserved stratigraphy layers have thickness from 0.5 to 1.9 meters and in parts of transverse depressions it may be even more as much thicker. The aim of this paper is to show the latest data sources to the object of interest and to assess the state of current research.

Nowadays it is possible to comment the genesis of stratigraphic sequences only on the basis of macroscopic observations made during the archaeological rescue researches. On sites shown we can see, that development of the layers in prehistoric and historical periods to the present. Preserved stratigraphy layers have thickness from 0.5 to 1.9 meters and in parts of transverse depressions it may be much more thicker. The aim of this paper is to show the latest data sources to the object of interest and to assess the state of current research.

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TH5-02 Abstract 25

**EcoPlis: characterizing the prehistoric human occupations in the Lis River Basin (Portugal)**

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**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 hominine 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. In our first year, we found over 50 new caves and rockshelters with sediments, found artefacts dated from the Achulean to the Chalcolithic and start the excavation of two cave and a rockshelter. Our approach includes the 3D piece-plottting of all viable finds without a cut-line, the complete flotation of the sediments from archaeological layers and samples for phytoliths and parasites. Among other things, we found multiple entrances with human remains in a short time and in a same cliff that may correspond to two Early Prehistoric mortuary complexes, a dense shell layer in a Paleolithic site located over 25 km from the present seashore and, thanks to our protocol, we could recognize fine lenses of deposition of the natural and archaeological remains in a same archaeological layer that will allow us to create detailed diachronic and synchronic snapshots of the human occupation and ecodynamics of this region throughout its Prehistoric occupation.

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TH5-02 Abstract 26

**Palynological contribution for formation processes reconstruction in a Neolithic pile dwelling site**

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**Keywords:** formation processes, La Draiga, Palynology

**Presentation Preference:** - Poster

The integration of pollen and non-pollen palynomorphs (NPP) analyses provides essential data to reconstruct palaeoenvironmental conditions in both regional and local scales. The application of these analyses in archaeological deposits also offers the possibility to obtain evidence of socioeconomic practices, in terms of documenting crops, gathered plants, stabling of flocks, etc. In addition, the integration of both biocartographic proxies and the information from the archaeological excavation allows reconstructing the dynamics of formation of the archaeological record. In this work, a spatial analysis of pollen and NPP taxa has been carried out in order to obtain a better understanding about the formation of the several archaeological structures and sedimentary units of the site of La Draiga (Sirona, Spain), a pile dwelling site located in the shore of Lake Banyoles.

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TH5-02 Abstract 27

**Multidisciplinary aproach in the analisys of a 9th century settlement from Carpathian Basin**

**Author:** - Fe kale, Laszlo, Herman Otto Museum, Miskolc, Hungary (Presenting author)

**Presentation Preference:** - Poster

The Avar Khaganate was failed in the begin of the 9th century by Charlemagne’s campaigns. In the Carpathian Basin have not data about the people of the Khaganate. In 2014 the excavation at Hővégkő-Malomszög increased our knowledge about the Bódva-valley in the 9th century. The settlement features of this site are well-known from other contemporary archeological sites. Long- shaped, round-cornered pits are dominant, but without any further information, one can only guess at their function. The two outer furnace of Hővégkő are of great importance because this furnace-type is rare in the 9th century. The lack of sunken featured buildings could allude to the usage of blockhouses. In spite of their low number, the pottery fragments are various. The firing methods are also various. The high amount of porous pottery with gas bubbles is a local speciality. The ceramic’s ornamentation is uniform: it consists of wave-mouldings and stripes. By analogy with contemporary material, the pottery fragments can be dated to the 9th century. The excavation’s most outstanding item is a hornjar. Archaeologists 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 traditionaly archeology data compiled by many archeometrical methods. Several institute made investigation on the found. So we have petrographic analysis, radio-carbon and tormolinsmecene 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 Hővégkő-Malomszög probably had an Avar origin and it can be suggested that they lived there permanently and they lived Conquist of the Hungarians.
TH5-03 Abstract 01
Dietary Isotope and Paleopathology Reconstruction of the First Pastoralists from Cis-Baikal, Siberia

Author - Dr. Warski-Rie, Andrea, Leiden University, Leiden, Netherlands (Presenting author)

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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 as well as plants. In contrast, 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‰ less negative than the domesticated fauna, which can be explained by consumption of freshwater resources. In some later period pastoralist individuals 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 most complete skeletons, by far the most common pathological lesions are osteoarthropathies of the spine and degenerative disc disease (n=9) and spondyloysis of the fifth lumbar vertebra (n=3). One older male had a healed tibia/fibula fracture and two individuals had genu valgum. Of the cases, the upper limbs, especially the humerus and ulna, were robust and had very pronounced muscle attachment sites. We propose this suite of pathological lesions and bony alterations are likely the result of a lifetime of high mobility and riding horses through the rough steppe environments of the Cis-Baikal. This research offers 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, Iberia, paleopathology, stable isotope analysis

Presentation Preference - Oral

Marroquíes Bajos represents one of the largest Copper Age (c. 3200-2250 BC) mega-sites in Iberia and comprises a collection of numerous human remains. The site includes three areas of necropoleis (N1, N2 and N4) where primary and secondary burials were documented. In this paper we explore dental paleopathology, diet and mobility at the Copper Age site of Marroquíes Bajos (Jaén, Spain).

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Keywords: health, necropolis, stable isotopes

Presentation Preference - Regular session

Despite these advances, other aspects as the dietary component of the pathological conditions, the role played by the mobility in the spread of the maladies, and whether diseases can alter the bioarchaeological signals in the tissues deserve further in depth attention. This session aims to bring together archaeologists, physical anthropologist, paleopathologist, archaeoecologists and scholars related with these topics. The objective will be to explore the connections between diet, mobility and disease, analyzing human and animal remains. The non-exclusively unresolved problems to discuss about are: i) the impact (absence) of the introduction of new foodstuff in the health status of a population, ii) growth patterns and health outcomes, iii) changes in human and animal subsistence strategies and consequences on their lifestyles, iv) the exposure to toxins (eg. trace metals) and how to tell these effectively from post-mortem contamination, and v) the relation between (infected) diseases and mobility. We welcome papers on case studies in these or similar topics, as well as contributions that address methodological aspects such as intra-skeletal variability or new bone chemistry applications (e.g. FTR, Py-GCMS,multi-isotopic studies, proteomic, etc.).

TH5-03 Abstract 03
Dental paleopathology, diet and mobility at the Copper Age site of Marroquíes Bajos (Jaén, Spain)

TH5-03 Abstract 04
Diet, Pastoralist, Siberia

TH5-03 Abstract 05
TH5-03 Abstract 06
TH5-03 Abstract 07
The paper will present and discuss results of stable isotopes analysis of carbon and nitrogen for a diet as well as strontium and oxygen for a provenance from 6 inhumation cemeteries with chamber graves. This form of elite burials was constructed and used in early medieval Poland mostly during the second half of the fifth century and the first third of the sixth century. The position of adults was characterized by having an inner wooden construction in a form of a chamber and were often furnished with numerous and lavish grave goods.

Such burials were places of eternal rest for men, women and children. For the study of the diet and the provenance we examined samples of bone collagen and tooth enamel from individuals buried in chamber graves as well as samples from ordinary human graves and animal remains as a background. The obtained results suggest that individuals buried in chamber graves formed a heterogeneous group of people. Some of them seem to be of local origin and some were newcomers from different regions. Their diet, with some exceptions, did not vary much from the deceased interred in ordinary graves. However, the diet consumed by men and women buried together in double graves differed significantly.

TH5-03 Abstract 07
A paleopathological 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 1448-1572) using a combination of dental disease and stable isotope data.

The caries results clearly point to a dietary shift (213 individuals analysed). The urban population of Alkmaar has a significantly higher caries frequency, which begins at a younger age, than the individuals from 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 (15N) ratios and had more variable (13C) 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 (15N) ratios.

A difference in the patterning of caries and isotopic data in males versus females betwee 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 phenomon 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 richer in the female diet, that did not shift their (15N) values away from that of the females, but elevated their frequency of caries. This could include more starches or sugars, but also increased consumption of boar should be considered.

The combination of caries and isotopic data points to clear changes in diet for urban individuals of late medieval Holland. It is hypothesised that an increase in market dependence and availability of international trade products in the late medieval period contributed to this dietary shift. Through the urban markets, new products such as fresh fruits, but also sugar and honey, became more widely available. Additionally, new techniques for preserving fish may have resulted in increased consumption of marine foods in towns. Moreover, a greater component of omnivores of high trophic levels in the diet could have contributed to the observed dietary shift. This study demonstrated that the integration of paleopathological and isotopic research provided a more complete understanding of dietary changes in medieval Holland.

TH5-03 Abstract 08
The mobility at medieval cemetery in Hamina in northern Finland
Author - Dr. Lahtinen, Maria, University of Turku, Turku, Finland (Presenting author)
Keywords: mobility, strontium isotopes analyses
Presentation Preference - Oral

Stromium isotope analysis is used to study mobility in the past societies. It has provided us a tool to investigate outliers from populations, and also a way to estimate the mobility patterns. It is based on assumption of strong correlation between strontium isotope ratios in environment and human calcified tissues.
This strontium analysis method was applied on a large skeletal collection (MIN 260) discovered from the In Hamina cemetery. The site which was used during the 15th to 16th century AD and has been previously studied with stable isotope analysis for diet, with preliminary results suggested that the population has a large input of aquatic food in their diet. However, our results showed that the "protective" allele was already fixed in Medieval Europe but seems to have been relatively recent. Our findings show that the "protective" allele was already fixed in Medieval Europe but seems to have been relatively recent. Our findings show that the "protective" allele was already fixed in Medieval Europe but seems to have been relatively recent.

In this study, we investigate the frequency and even the presence of the allele thought to be protective agent against leprosy (Mycobacterium leprae) has been proven to be an organism that does not exhibit much variability, neither in terms of time nor in space. However, studies have shown that a distinct phylogeography seems to exist, allowing researchers to discuss several scenarios about how leprosy spread across the world. In contrast to the limited genetic variability of the pathogen, however, the clinical symptoms of the disease vary to such a degree that this has led to the notion that it is a secondary process related to the loss in integrity of the collagen; and iii) the observed diagenetic changes in collagen composition/structure did not affect in a significant way the 

**TH5-03 Abstract 10**

**Dietary variability among earliest domesticated pigs in the Iberian Peninsula**

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**Keywords:** Early Neolithic, foddering strategies, stable isotopes

**Presentation Preference - Oral**

Dietary variability among earliest domesticated pigs in the NE Iberian Peninsula (S700 3500 cal BC) is a stable isotopic perspective. Domesticated pigs (Sus domesticus) played an important role in the Early Neolithic economy of the western Mediterranean. Studies from the Iberian Peninsula reveal that their exploitation followed a systematic pattern oriented to the production of meat, for example with animals slaughtered between the age of 18 to 24 months. Although this pattern is a common one, however, differences in management strategies may have existed between sites, perhaps as a function of environmental conditions, size use and community organization. Previous studies have shown the potential of stable isotopes for assessing variability in foddering strategies, but this approach has never been systematically applied to animal bone remains from this region. In order to investigate how early Neolithic communities raised and managed domesticated pigs in the NE Iberian Peninsula, we selected a rich assemblage of wild and domestic pig bones from Neolithic sites, dated between S700-3500 cal BC, for carbon and nitrogen stable isotope analysis. The results reveal remarkable dietary diversity in the diet of domesticated pigs between sites, pointing to the existence of different management strategies. This study shows the correlation of the results by the type of domestication (wild on the least) and in different occupation phases within settlements. Differences between settlements point to the diverse importance of pig management in hunter-gather practices. We discuss the implications for understanding management strategies during the regional development of the Neolithic economy in the NE Iberian Peninsula.

**TH5-03 Abstract 11**

**What can FTR tell us about archaeological bone collagen preservation?**

**Author** - Prof. Martinez Cortizas, Antonio, University of Santiago de Compostela, Santiago de Compostela, Spain (Presenting author)

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**Keywords:** Bone collagen, FTR, quality indicators

**Presentation Preference - Oral**

The collagen of human and animal bones is routinely extracted and analysed in scientific Archaeology (e.g. paleodiet studies, 14C dating, etc.). Reliable information can only be obtained from analysis of collagen with a “good” level of integrity, a condition that has been determined by different approaches based on, for instance, elemental composition (C and N content), C:N ratios, collagen yield, amino acid profiling or amino acid racemization. In addition, spectroscopic techniques provide a sensitive, non-destructive method to investigate the molecular structure of extracted collagen; however, a deep knowledge of multivariate statistics is required to deal with the large amount of data generated.

We used FTR spectroscopy to characterize non-ultrafiltered collagen extracted from 50 skeletons recovered in 8 necropolises from NW Spain, representing a wide chronological period (~3.500 years), multiple soil environments and different funerary deposits. The second derivative and the standard deviation spectra were used to identify the most relevant absorption bands. Principal components analysis (PCA) and multiple regression models were developed to synthesize the spectroscopic information and to estimate collagen quality parameters. The four principal components extracted by PCA were interpreted as two main diagnostic changes:

1) A primary process leading to the preferential loss of collagen α-helix and a residual increase in carbohydrates, and ii) a secondary process related to the loss in β-sheets; and two minor components related to: i) variations in aliphatic side chains and ii) absorptions of the OH of carbohydrates and amide A. Highly significant regression models were obtained for the quality indicators (collagen yield, C, N, C:N ratio) using the principal components as predictors, but no relationships between the δ 13C and δ15N and the components were found. Our data suggest that the decrease in C and N contents and the increase in C:N ratios are caused by the degradation of the protein and the relative preservation of carbohydrates.

It can be concluded that the extracted archaeological collagen does not seem to be contaminated with exogenous organic substances; i) for the studied samples there is a continuous change in C, N, and C:N ratios that is coupled to the structural integrity of the collagen; and ii) the observed diagenetic changes in collagen composition/structure did not affect in a significant way the δ13C and δ15N values, thus supporting their use for paleodiet reconstruction.

**TH5-03 Abstract 12**

**Leprosy of the past: The genetics behind pathogen-host interactions, as revealed by ancient DNA**

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**Keywords:** genetics, immunity, leprosy

**Presentation Preference - Oral**

Leprosy is a well-studied disease of the past. Its significance in paleopathology has been secured due to many historical references, bone lesions that allow osteoarchaeologists to document its presence in the archaeological record, and various biomolecular studies that have traced the pathogen’s genetic mark. The causative agent (Mycobacterium leprae) has been proven to be an organism that does not exhibit much variability, neither in terms of time nor in space. However, studies have shown that a distinct phylogeography seems to exist, allowing researchers to discuss several scenarios about how leprosy spread across the world. In contrast to the limited genetic variability of the pathogen, however, the clinical symptoms of the disease vary to such a degree that this has led to the notion that it is a secondary process related to the loss in integrity of the collagen; and ii) the observed diagenetic changes in collagen composition/structure did not affect in a significant way the δ13C and δ15N values, thus supporting their use for paleodiet reconstruction.

In this study, we investigate the frequency and even the presence of the allele thought to be protective against leprosy in populations of the past. For this reason we generated new ancient DNA data from two cemeteries from Medieval Sweden (where leprosy had been previously documented) and compared the results with published genomes from even earlier populations, reaching back to the Mesolithic. Our findings show that the “protective” allele was already fixed in Medieval Europe but seems...
to be lacking in specimes from the Stone Age. Thus, we discuss whether there has been selection of this allele, as well as the possible routes that it followed in order to enter Europe and give rise to its prevalence today.

**TH5-03 Abstract 13**

**Finding a common framework for skeletal science in Archaeology**

**Author:** Dr. López-Costas, Olalia, Universidade de Santiago de Compostela / Group Earth System Science, Oit Geography, Santiago de Compostela / A Coruña, Spain (Presenting author)

**Keywords:** life conditions, population/environment perspective, skeletal science

**Presentation Preference:** Oral

Skeletal science can be defined as the application of scientific techniques to the analysis of archaeological skeletons. It includes various approaches such as stable isotope analysis, ancient DNA and elemental composition, as well as other of more recent introduction as FTIR, pyroliases, OMMS and proteomics. All these methods are under the umbrella of bioarchaeological approaches, since they study the chemical, physical, geological, and biological properties of bones and teeth. Their most useful purposed aim is to reconstruct different pre-mortem features (i.e. diet, mobility and health) of the individuals the skeletons belonged to. Thus, it is worth to remark that the properties we analyse in specimens are in fact approximations (i.e. proxies) of the multiple processes governing bone and tooth formation and degradation.

My own research started in the field of Physical Anthropology with emphasis in osteological variation and paleopathology. In the last years, I have been more involved in the application of biogeochemical techniques, discovering their utility in unraveling pre-mortem characteristics and how complementary their data are with more classic macroscopic approaches. I also realized that less attention has been paid to the role of post-mortem processes (diagenesis) on the chemical transformations of bones and their effect on pre-mortem signals.

Despite the recent advances in every specific field, and with few exceptions, most of the investigations have been highly disciplinary, seldom involving other core research areas. An example is the few connections between paleodiet reconstruction using stable isotopes and the study of ancient health, which has been discussed in the recent workshop “Paleodiet meets paleopathology.”

What does it really matter? As Physical Anthropology teaches us, the focus should be put in the populations since they better reflect the group of individuals that lived at a certain time. Avoiding the bias single case studies may introduce. And the population perspective should be embedded within an integrated vision of the environment, whose changes challenge human populations at many levels (e.g. health, resources availability, migration). The changes also pertain to specific human activities such as mining and metallurgy that may pose a threat (e.g. metal pollution) both to the societies and the environment.

Moving our focus from the straight interpretation of the data to the understanding of the processes involved will surely allow us to see the big picture that can explain aspects of human life in the past. In my opinion, a common, coherent framework based on the population/environment perspective should be implemented to be able to unveil more the possible routes that it followed in order to enter Europe and give rise to its prevalence today.

**TH5-03 Abstract 14**

**Famine to find God? Isotopic approaches to Nuns’ diet of the Convento de Belmonte, Cuencia, Spain**

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**Keywords:** isotopic analysis, paleodiet, paleopathology

**Presentation Preference:** Poster

The advances in geochanical and physical anthropological studies have provided new tools to reconstruct the lifestyle of archaeological populations, especially on those minorities not commonly mentioned in the texts. This is the case for nuns. Despite the relative availability of works dealing with religious communities food and everyday life, these are almost exclusively focused on male, i.e. monks. However, the habits of the cloistered nuns have remained invisible to chronicles as well as to archaeologists. Despite the relative availability of works dealing with religious communities food and everyday life, these are almost exclusively focused on male, i.e. monks. However, the habits of the cloistered nuns have remained invisible to chronicles as well as to archaeologists.

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**TH5-03 Abstract 15**

**Ancient dental calculus as new source of information for a 10th century population from Dobrogea**

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**Keywords:** dental calculus, molecular analysis, oral microbiome

**Presentation Preference:** Poster

A series of interdisciplinary tools can be used in order to investigate ancient dental calculus from archaeological human remains. Molecular analysis can be easily associated and stable isotope analysis in order to obtain valuable information regarding past population lifestyle. The oral human microbiome can be investigated in order to determine the bacterial specificity in the ancient populations compared to modern ones. Dietary changes are correlated with modifications in the oral microbial community structure. A series of species with particular signatures associated to human oral microbiome can be identified and tracked through space and time in the human population. The dietary preference indicates the specificity of human-environment interaction in search for food and water.

This study has received 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 (CNSCS-UEFISCDI_ PNII_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 (CNSCS-UEFISCDI_PNII_PCCA_1153/2011) project.
Since 2012, excavations at the site of Montiel (Spain) had led to the discovery of two cemeteries, representing two socially and culturally distinct communities: one Muslim (11th - 13th century AD) and one Christian (13th - 15th century AD). The geochemical composition of these osteological remains (10 individuals and 21 Christians) was investigated to see how different religious beliefs, culture and social status might have influenced the diets of these populations which were buried in a similar manner and to compare the results obtained with historical sources.

The nature and location of dietary components determine their specific geochemical composition which passes on through the food chain and is archived in consumers' bones. The Muslim and Christian skeletal remains can therefore be used as witnesses of individuals' dietary habits and preferences, at least for the last 300 years before their death, as a result of the recent development of geochemical modelling throughout the timeframe. The mineral part of the bone (biocollagen) registers the same diet as the dietary constituents (lipids, carbohydrates and proteins), while the composition of bone's organic component (collagen) reflects the geochemistry of ingested protein. The geochemical analysis of both bone biocollagen and collagen can therefore provide a detailed picture of the subsistence strategies adopted by the late medieval populations buried at Montiel.

These dietary strategies will be discussed regarding the type of plant resources, inferred from bone carbon isotopic ratios (δ13C), the origin of water supply, deduced from bone oxygen isotopic ratios (δ18O), as well as individuals' 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 AMS, bone Sr/ Ca and Ba/ Ca ratios were also analysed to provide additional information on the trophic level, marine food consumption, as well as potential mobility. Bone Sr, Ba and Ca contents were measured using a cutting-edge technique (LA-ICP-MS) that enables us to create spatial high resolution maps of bone trace element concentrations and target preferential bone histological features which might be preserved from post mortem alteration.

This study also investigates the geochemical composition of contemporary faunal remains (ca. 10 individuals from each period studied) from neighboring settlements, with a view to establish an environmental geochemical baseline for each analytical proxy applied, and to enable the discussion of the Muslim and the Christian economy in Montiel.

The silver mine in Nasafjäll and the site of Silbojokk with its silver smeltery, lodging houses, bakery, church and churchyard has a long and quite complicated history. It has known several phases of use being interrupted amongst others by warfare, buildings being burnt down, diseases, etc. The mine was established in 1635, but was burnt down by Norwegian soldiers in 1659. Two other periods of mining after 1659 has been noticed through history. Already from the start workers were travelling from the European continent to the Bothnian coast to compare with the inland areas. As you may ask, who were the historical sources many died of illness due to the hard work in the mines. Elemental analysis of lead will be applied to trace evidence of lead poisoning, Silbojokk, stable isotopes.

Tracing diet, mobility and causes of death of a 17th century miner population in Silbojokk, Sweden
Author - PhD student Fjelström, Markus, Archaeological Research Laboratory, Stockholm, Sweden (Presenting author)
Keywords: lead poisoning, Silbojokk, stable isotopes
Presentation Preference - Poster

The silver mine in Nääsjärvi and the site of Silbojokk with their silver smeltery, lodging houses, bakery, church and churchyard has a long and quite complicated history. It has known several phases of use interrupted by warfare, buildings being burnt down, diseases, etc. The mine was established in 1635, but was burnt down by Norwegian soldiers in 1659. Two other periods of use, after 1659 has been noticed through history. Already from the start workers were travelling from the European continent to the Bothnian coast to compare with the inland areas. As you may ask, who were the historical sources many died of illness due to the hard work in the mines. Elemental analysis of lead will be applied to trace evidence of lead poisoning, Silbojokk, stable isotopes.

Presentation Preference - Poster

TH5-03 Abstract 18
Interdisciplinary investigations on Strzyzow Culture Cremation Cemetery from Early Bronze Age in Rogalin (Eastern Poland)
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Keywords: anthropology, DNA, Strzyzow Culture
Presentation Preference - Poster

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 Lubin Upland, that is the area between the upper Wępra river and the Bug river, to the area of south-western Volhynia crossing the Horn river in the area of present-day Ukraine. The highest density of its sites is in the territory of Hornolo Plateau and near the town of Hrubieszow. Approximately of the Stone Age, the mictolithic Corded Ware culture disappears in its existing form, and post-Corded Ware traditions become the foundations for the creation of new archaeological cultures which are chronologically assigned to the Early Bronze Age. The western part of Poland, in the Odra and Warta river basins, is occupied by the Urlicze culture, and the central and eastern part (upper Odra and Vistula river basins, Lublin region, Volhynia, Podolia) is the area of the Mierzanowice culture. The first Strzyzow Culture appeared round 2000 BC, but the earliest occurrence of the culture is dated to the end of the first millennium BC. Strzyzow culture was distributed over the area from the central part of Lublin Upland, that is the area between the upper Wieprz river and the Bug river, to the area of south-western Volhynia andTranscarpathia.

DNA investigations continue. 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 images. The main objective was to identify essential for skeletal and dental age estimation, to determine the biological status of skeletons, to diagnose any bone pathologies and abnormalities. Two skulls from graves 10 and 15, were subjected to identification tests, i.e. face approximation process using 3D computer software.

The burial site of the Strzyzow Culture in Rogalin contained 15 graves with the skeletal remains of 18 individuals. In 3 of 15 graves skeletal remains of more than one individual were found (one adult and one child in each of 3 double graves). Interdisciplinary anthropological and genetic investigations allowed to approximate sex and biological age (skeletal and dental age) of individuals. There were skeletal remains of 9 adults and 9 children. Adults and the adults there were 4 males and 5 females. Genetic investigation allowed to establish sex of the children - 2 males and 5 females. The sex of two individuals (children) is unknown. DNA investigations continue.

Genetic investigation allowed to establish sex of the children - 2 males and 5 females. The sex of two individuals (children) is unknown. DNA investigations continue.

Skeletal and dental pathologies have been observed. Osteoma in the tibia of the individual found in grave No. 10 has been discovered during radiological investigations. The cribra orbitalia has been discovered on the orbital ridges of the adult individual from grave No. 4A. The left maxillary first molar from grave No. 4A and the right mandibular second molar in the individual from grave No. 6A presented with caries. The oldest adults from the Strzyzow Culture displayed extreme tooth wear patterns. Three from 18 of the investigated individuals (burial No. 6A, 8 and 11) exhibited enamel hypoplastic defects easily observable macroscopically and stereomicroscopically. In all cases they presented a linear pattern, in one individual during course. DNA analysis of bone fragments from each individual were performed. The results allowed to establish the degree of kinship among the individuals from various graves. The analysis using STR and SNP markers gave more information about the ancestry of the individuals, whose remains were excavated and examined.

The most “spectacular” results were obtained during the analysis of the remains of graves 9 and 10A. “The Warrior”, as this individual has been denominated by the research team. The analysis of STR markers located on the Y chromosome, which is inherited from father to son, showed the same haplotype between two men (grave 9 and 10A). They could have had the same ancestor in the male line, and could be brothers or cousins.
Initially the genetic profiles obtained from the remains of the graves 10A - “The Warrior” and 10B - bone fragment derived from a child point to a parent-child relationship. However, the genetic profiles obtained were incomplete so it was very difficult to define the relationship type. In later stages of the project it has again carried out a genetic analysis of the remains of the graves 10A and 10B, with another bone fragment (10A grave). The results of this new analysis provided a more complete genetic profile and confirmed the earlier presumption of parent-child relationship. In the analysis of mitochondrial DNA (mtDNA), the same haplotype mtDNA were observed among individuals of the graves 4B and 8, and the graves 3 and 5, which may define their kinship in the maternal line. Estimates haplotypes (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 H1a and H6 respectively. Recent genetic studies of the remains of the burials 13 and 15 have been inconclusive about the sex of the individuals analysed. While mtDNA haplotypes obtained indicate that they belonged to haplogroup 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.
The question of Bronze Age mobility has been central to many discussions of the period. In Britain, such discussion has been heavily focused around 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 (Harvig et al 2014; Snoek 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 fenslands, 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.

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 bones 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 there is 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 of burning bones (bioapatite) and unburnt bones (collagen) from the same burial assemblages, can help build a more proper absolute chronology of the nearly two thousand-year-long Bronze Age period when communities in large parts of the Carpathian Basin followed the tradition of cremating the dead. During the years of method development for cremated bone two, basically different directions have formed. Besides the differential chemical treatment method there is another one which is based on the severe chemical pre-treatment of the bioapatite sample. By measuring parallel organic bones as reference, a refined chemical pre-treatment was tested and applied to bioapatite samples at HEKAL laboratory, Debrecen to obtain a reliable and effective method for AMS 14C dating of such sort of samples.

Cinerary urns are a real challenge in the study of ancient populations. Content and container are indeed the result of a series of social customs and funerary gestures that begin after the death of the subject with the cremation rite and ends with the deposition of the ashes in the definitive burial place. The difficulties related to the study of the funerary rite of cremations are easy connected with the quantity and quality of information that can be obtained. The stratigraphic analysis of the urn content potentially documents the depositional process from its filling to its deposition in the definitive grave, including any changes related to the interaction with the surrounding environment, tampering, and so on. Manual laboratory micro-extraction permits an ordinately empty of the urn through an arbitrary division of its content in horizontal sections, from top to bottom, joined to an accurate graphic and photographic documentation. One of the limits of this method is the difficulty to fully understand the spatial relationships between the layers and materials contained in the urn and their alterations. Multidetector CT (MDCT) permits a careful, non-destructive volumetric study of the whole content of the urn, keeping unchanged the spatial relationships between the layers. The differences of X-ray density of the layers and of the material contained in them permit to easily individuate the interfaces between them. Briefly, MDCT offers many advantages in respect to micro-extraction from stratigraphic point of view, suggesting its utilization before any non-repeatable operation made on the urn. Our experience after MDCT scan on 40 cineraria from Neolithic to Roman age will be presented.

Cremated bones from Early Iron Age tarand graves in Estonia

This presentation will focus on the methodology and results of Estonian Early Iron Age (500 BC – AD 450) grave type called tarand grave. The work has been conducted on four different grave sites and the intention is to find out whether there were retrievable systems behind placing the dead into the grave and explain the findings in the context of the Iron Age burial practices. The contents of the tarand graves are severely commingled – artefacts and bones are scattered in between the stone constructions. Also, the bones in these graves are very fragmented and can be either cremated or inhumed, even though cremation was the predominant rite. Visual osteological analysis of the found material has been beneficial, but has also given rise to further questions. In order to understand more about the burial customs and gain more information from the material, I have used the help of a combination of methods; among them radiocarbon dating, aDNA analysis, statistical and location analyses, 3D photogrammetry.

A Case of Contested Cremains Analyzed Through Metric and Chemical Comparison

Since the 1980s, cremation has become the fastest growing area of the U.S. funeral industry. At the same time, the number of court cases against funeral homes and cremation facilities has increased. Forensic anthropologists are often asked to determine whether the contents of an urn are actually cremated bone, and to address questions regarding the identity of the remains. This study uses both metric and chemical analyses for resolving a case of contested cremains. A cremains weight of 2021.8 g was predicted based on the decedent’s reported stature and weight. However, the urn contents weighed 1737.5 g. The urn contents also contained material inconsistent with cremains (e.g., moist sediment, stones, ferrous metal). Analysis using XRD and SEM demonstrated that the urn contained thermally altered bone as well as inorganic material consistent with glass fiber cement. Although forensically challenging, cremains cases such as this one can be resolved using a cross-disciplinary approach.
TH5-04 Abstract 07
Up in Flames: Animals, People, Identity and Cosmology in Anglo-Saxon East Anglia, UK

Author - Rainsford, Clare, University of Bradford, York, United Kingdom (Presenting author)
Presentation Preference - Oral

Human and animal co-burials are a critical resource for zooarchaeology, presenting instances where a personal connection can be demonstrated between people and animals. Animal remains have been recognised in 5th to 7th century cemeteries in eastern England from an early date, and systematic analyses in the 80s and 90s of high-profile sites such as Spong Hill, Norfolk, have served to demonstrate the frequency, diversity and value of these inclusions. Yet the information from cremated animal remains is persistently under-exploited, due to difficulties on the one hand of accurate identification, and on the other of paltry retention of material from antiquarian and later excavations.

As a result of animal remains in cremation burials becoming 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 - Bloxam, Anna, UCL Institute of Archaeology, London, United Kingdom (Presenting author)
Keywords: Cremation, 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 might have involved. The attempt 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 implications of the 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)
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Keywords: radiocarbon, dating, cremated bone, Bronze Age
Presentation Preference - Poster

A compilation of 14C dates over the last 50 years shows that less than 6% of all the bone dates were performed on purified bioapatite. The effective separation of the phase to be dated and the secondary calcite seems to be a challenge for researchers due to their identical chemical formula. Nevertheless physical and chemical changes which occur during the cremation process make cremated bones less susceptible to this type of contamination. In spite of all the difficulties a huge demand is shown for a reliable bioapatite preparation and measuring method since in a lot of cases dating is only possible by means of such findings.

At HEKAL laboratory, Debrecen, Hungary, we have dated several 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 (2600/2500-1800/1500 BC) were used where the expected age of the samples were detectable by dating well preserved, un-burnt bone findings from the same grave. At first, the intact bones were dated using the collagen fraction. In case of bioapatite samples, after the repetitive rinse with sodium hypochlorite and acetic acid step, the crushed and sieved samples were reacted with phosphoric acid. The revealed CO2 gas was subsequently purified from other gases, graphitized by sealed tube method and its 14C content was finally measured by the MICADAS AMS. Based on our first results fractions with different particle size (0.2-0.3 and 0.5-1 mm) yielded identical carbonate content and 14C age results. However, comparing the age of the three parallel bioapatite samples, it was proved to be the same, that to organic fraction a difference of 200-400 years was experienced presumably due to the chemical pre-treatment.

On this poster we would like to present both the evolution of our carbonate pre-treatment protocol and dating problems arisen in the case studies of the presentation entitled „Cremated Dating”? Case studies for the dating of Bronze Age cremation burials from Hungary.
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 dispersal 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 unfield 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 approach to the analysis of burnt human remains. This poster addresses the importance of context when interpreting graves containing cremated remains, as well as more practical considerations, such as the likelihood of obtaining age and sex data. Another crucial aspect when examining cremated remains is the recognition of animal bone. Commonly, the remains of animals may be removed as part of the post-excavation sorting process, but the identification of species and oxidation level can contribute to wider interpretations of funerary practices in the past. Although the analysis of cremated human bone can be problematic, this study demonstrates the benefits of investigating cremated remains as a method of elevating our understanding of funerary processes in the past.

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 excide 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 burnt "dry" bones, dehydrated and delipidated 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 pelvis skeleton of horse, the second one – the pelvis, the scapula, metapodial of horse. The colour analysis of the identified human remains found the same features specific to the first group. The cremation temperature for the animal remains did not exceed 300°C.

The gender and age of cremated people was identified in 14 cases. Only one of them was a 7-8 years old children. Other burials belonged to adults. The majority of them was 45-55 years old women. Only two burials contain remains of men. The insufficient state of conservation, fragmentation and the lack of necessary morphological markers made impossible the gender determination in 5 cases.

The further studies of 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.
PLAQUE IN DIACHRONIC AND INTERDISCIPLINARY PERSPECTIVE

TH5-05

Friday, 2 September 2016, 09:00-16:00
Faculty of History, Room S1
Authors: G. Schmidt-Munsamy, Doris, Université de Bordeaux, Pessac, France
Co-author(s): T. Kelley, Marcel, Max Planck Institute for the Science of Human History, Jena, Germany
Co-author(s): J. Eddy, Justin, Northwestern University, Chicago, United States of America
Keywords: Diachronic perspective, Plague
Presentation Preference - Regular session

Plague, an infectious disease caused by the bacterium Yersinia pestis, occurred in at least three major historical pandemics: the Justinianic Plague (6th to 8th century), the Black Death (from 14th century onwards), and the modern or Hong Kong Plague (19th to 20th century). Yet DNA from bronze age human skeletons has recently shown that the plague first emerged at least as early as 3000 BC. Plague is, as any disease, both a biological as well as a social entity. Different disciplines can therefore elucidate different aspects of the plague, which can lead to a better understanding of this disease and its medical and social implications. The session shall address questions like:

• Which disciplines can contribute to the research on the plague?
• What are their methodological possibilities and limitations?
• How can they work together in order to come to a more realistic and detailed picture of the plague in different times and regions?
• Which ways had societies to react to the plague? How can they be studied or proved?
• Which common differences can be seen between the Justinianic Plague and later plague epidemics? Are there epidemiological characteristics that are essential and/or unique to plague?
• What are possible implications of the pandemic spread and endemic occurrence of plague through the ages for the interpretation of historical and cultural phenomena?

We would like to invite researchers from the disciplines of archaeology, anthropology, biology, history, medicine and related subjects to present papers in our session.

TH5-05 Abstract 01
The Biology of Yersinia pestis and Plague in the 21st Century
Author: Dr. Latham, Wyndham, Northwestern University, Chicago, United States of America (Presenting author)
Keywords: disease, epidemiology, plague
Presentation Preference - Oral

There are three species of Yersinia that cause disease in humans: Yersinia enterocolitica, Y. pseudotuberculosis, and Y. pestis. While Y. enterocolitica and Y. pseudotuberculosis cause mild, self-limiting gastrointestinal infections, Y. pestis is responsible for the rapidly progressing, invasive, and often fatal disease called plague. Although Y. pestis is thought to have killed over 200 million people throughout history, it is a relatively “young” pathogen, only recently emerged from Y. pseudotuberculosis between 5,000 – 20,000 years ago. In this presentation, we will discuss the types of infections and diseases specifically caused by Y. pestis, its modes of transmission, both between flea and mammal as well as between mammals, and provide an overview of plague in the rapidly progressing, invasive, and often fatal disease called plague. Although Y. pestis is thought to have killed over 200 million people throughout history, it is a relatively “young” pathogen, only recently emerged from Y. pseudotuberculosis between 5,000 – 20,000 years ago. In this presentation, we will discuss the types of infections and diseases specifically caused by Y. pestis, its modes of transmission, both between flea and mammal as well as between mammals, and provide an overview of plague in the 21st century, including information on why plague continues to be disease of worldwide concern.

TH5-05 Abstract 02
From Mild to Murderous: How Yersinia pestis Evolved to Cause Pneumonic Plague
Author: Dr. Latham, Wyndham, Northwestern University, Chicago, United States of America (Presenting author)
Co-author(s): Zimber, Daniel, Northwestern University, Chicago, United States of America
Co-author(s): Eddie, Justin, Northwestern University, Chicago, United States of America
Co-author(s): Schroeder, Jay, Northwestern University, Chicago, United States of America
Co-author(s): Ritzler, Jeremy, Northwestern University, Chicago, United States of America
Keywords: evolution, plague, pneumoniam
Presentation Preference - Oral

How do new pathogens emerge, and how do these pathogens take advantage of host processes and pathways to cause disease? Yersinia pestis, the etiological agent of plague, is a recently emerged clone of the gastrointestinal pathogen Y. pseudotuberculosis, but the specific genetic changes that enabled Yersinia to cause the respiratory disease known as pneumonic plague are not well understood. By using a mouse model of respiratory infection combined with comparative genetic and genomic studies between Yersinia species, we have identified two specific events – the acquisition of the Pla protease and the inactivation of the YadA adhesin – as key steps in the emergence of Y. pestis as an easily transmissible, serious respiratory pathogen. The acquisition of the Pla protease enabled ancestral Y. pestis strains to grow to high levels in the lungs and cause a fulminant, multifocal severe pneumonia, while the loss of YadA shifted the respiratory infection from a restricted, granuloma-like pathology to a loosely contained, easily expelled state. Indeed, the loss of YadA by Y. pseudotuberculosis may have been a key step by which Y. pestis acquired the ability to be spread by respiratory droplets, thus enabling epidemics of pneumonic plague.

TH5-05 Abstract 03
Fleas, rats and other stories - The palaeoecology of the Black Death
Author: Panagiotakopulu, Eva, University of Edinburgh, Edinburgh, United Kingdom (Presenting author)
Keywords: fleas, palaeoecology, plague
Presentation Preference - Oral

Bubonic plague is a disease which involves various animal vectors and hosts and its ecology is both complex and of importance in terms of its spread and virulence. The origin of the Black Death is central to its better understanding and can throw light on the medieval pandemic and later epidemics. This paper discusses the ecology and biogeography of bubonic plague and looks into the natural history and palaeoecology relating to its vectors, primary and secondary. Xenopsylla cheopis and other flea species and hosts, the e.g. Anicarcinis 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 Raamussen, Simon, Technical University of Denmark, Kgs. Lyngby, Denmark (Presenting author)
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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. Raamussen, M. E. Allentoft, K. Nielsen, L. Orlando, M. Sikora, K.-G. Stoltenberg ... 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 crisis, 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 Yersinia to cause the respiratory disease known as pneumonic plague are not well understood. By using a mouse model of respiratory infection combined with comparative genetic and genomic studies between Yersinia species, we have identified two specific events – the acquisition of the Pla protease and the inactivation of the YadA adhesin – as key steps in the emergence of Y. pestis as an easily transmissible, serious respiratory pathogen. The acquisition of the Pla protease enabled ancestral Y. pestis strains to grow to high levels in the lungs and cause a fulminant, multifocal severe pneumonia, while the loss of YadA shifted the respiratory infection from a restricted, granuloma-like pathology to a loosely contained, easily expelled state. Indeed, the loss of YadA by Y. pseudotuberculosis may have been a key step by which Y. pestis acquired the ability to be spread by respiratory droplets, thus enabling epidemics of pneumonic plague.
Over a period of 150 years from about 1200 BC, the Mycenaean states collapsed. The great Mycenaean centres did not decline slowly during this period, but suffered sudden destruction at the very peak of their prosperity. Five hypotheses have been proposed to explain the collapse: invasion, civil war, local risings, earthquakes and climate change. However, none of them seems to provide a satisfactory explanation of the existing archaeological material. At about the same time, similar disturbances and destruction also afflicted Cyprus, Syria and Anatolia, and the Hittite empire came to an end. The temporal and geographical distribution of these disasters and the subsequent course of events in the Aegean region show a strong similarity to developments in the European region following the two later pandemics of plague. In addition, there is strong documentary evidence that there was at least one 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.


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TH5-05 Abstract 06

**Plague Before the Plague: Early Bubonic Plague in Greek Medical Literature**

**Author:** Muhall, John, Harvard, Cambridge, Massachusetts, United States of America (Presenting author)

**Keywords:** bubonic plague, Greek medicine

**Presentation Preference:** Oral

In October 2015, Rasmussen et al. published evidence that Yersinia pestis was infecting human hosts in Western Eurasia as early as the Bronze Age. In the past, molecular evidence did not give historians a reason to doubt that Y. pestis was relatively new to Europe at the time of the Justinianic Plague. The new evidence that Y. pestis was active during the early Mediterranean some 1,500 years before the Justinianic Plague therefore calls for a reevaluation of the evidence for plague in Antiquity before the Justinianic Plague.

This paper will report the conclusions of a close philological study aimed at uncovering what evidence there is for plague in the medical sources of antiquity, specifically, the Hippocratic Corpus, Rufus of Ephesus, and Galen. The picture that emerges from these medical sources is that Y. pestis was unknown to medical writers until around the mid second century AD, when Rufus of Ephesus reports 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 Aetnaeus both demonstrate an awareness of Y. pestis. Interestingly, 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 ἑορμαί (boubōnes) to describe glandular swellings appears twelve times in the Hippocratic Corpus, none of these twelve instances suggest that these boubōnes are plague buboes as opposed to other glandular swellings. A passage by Rufus of Ephesus that has been preserved in the Medical Collections of Orbisaurus contains the first description of a disease that we can confidently identify with plague. Rufus calls the disease "pestilential boubōnes" and details it in a way that corresponds both to modern descriptions of Y. pestis and to sixth-century descriptions of the Justinianic plague. In this passage, Rufus cites three little known authors who also knew of "pestilential boubōnes": Poseidionis, Dioscurides, and Diosynius Kurto. The names Poseidionis and Dioscurides could correspond to a number of possible figures, though both Rasumussen and Andellner authors correspond to modern descriptions of Y. pestis and to sixth-century descriptions of the Justinianic plague. While it was previously thought that this Diosynius Kurto was active in the third century BC, I will argue that Diosynius Kurto could have been active anytime before the first century AD.

Finally, I will argue that, like the Hippocratic authors, there is no robust evidence that Galen was aware of bubonic plague. The use of the term boubōnes in Galen refer most often to common lymphangitis and do not resemble plague buboes. While the passage in Rufus suggests that Y. pestis was active in the Mediterranean from around the first century BC to the first century AD, after the first century AD there are no new descriptions of Y. pestis until Late Antiquity.

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TH5-05 Abstract 07

**Placing the Plague of Justinian in the Yersinia pestis phylogenetic context**

**Author:** Klink, Jennifer, McMaster University, Hamilton, Canada (Presenting author)

**Co-author(s):** Wagner, David, Northern Arizona University, Flagstaff, United States of America

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TH5-05 Abstract 08

**Early medieval burials of plague victims: examples from Aschheim and Altendinger (Bavaria, Germany)**

**Author:** Dr. Gutsmiedl-Schümann, Doris, Freie Universität Berlin, Berlin, Germany (Presenting author)

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**Keywords:** early medieval cemetery, Justinianic Plague, Upper Bavaria

**Presentation Preference:** Oral

With this paper, we present burials from two early medieval cemeteries, Aschheim-Bajuwarenring and Altendinger/Kletham, where the causative agent of plague, Yersinia pestis, could be detected palaeogenetically. The burials from the early medieval cemeteries of Aschheim-Bajuwarenring and Altendinger/Kletham show that plague victims have been dressed and prepared carefully for their funeral. Compared to other graves from these cemeteries on the one hand and to contemporary burials in general, nothing basically indicates that the Y. pestis infected individuals had been treated differently than other deceased. Among the buried who were infected with Y. pestis occurred some of the richest and most well-equipped graves of the cemeteries. Therefore, it cannot be proven on base of the Early Medieval plague graves of the Munich graveyard plain that “…at that time all the customary rites of burial were overlooked. For the dead were not carried out escorted by a procession in the customary manner, nor were the usual chants sung over them […]” (Procopius, De Bello Persico II, 23. 10). 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 singular burials is still in an initial stage.

The Justinianic Plague was nevertheless a disease that affected Europe in the Late Antiquity, but its occurrence appears not everywhere as catastrophic as the written sources make us believe.

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TH5-05 Abstract 09

**Analysis of a high-coverage Yersinia pestis Genome from a 6th Century Justinianic Plague Victim**

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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-18th 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 rodent species reservoirs. These results show that rodent reservoir species warranted 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.
THS-05 Abstract 11

Germany and the Black Death: a zoonoarchaeological approach

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Keywords: Black Death, livestock keeping, size

Presentation Preference - Oral

Zoonoarchaeology is the study of faunal remains from archaeological sites. Animal bones can be used to track changes e.g. in herd composition, size or animal health. Significant changes in size over short periods of time are a testimony of the human influence upon their livestock. An increase in size can be triggered through food of higher quality, improvement of keeping conditions, but also through the import of new breeds from areas with specialized animal breeding. A decrease of size on the other hand is interpreted as deterioration caused not only by exogenous factors such as climatic shift and epidemic diseases, but also by societal and demographical changes. Thus, zoonoarchaeological evidence can therefore reveal new, non-documented aspects. In the first half of the 14th century AD several devastating events affected great parts of Europe, leading to a gradual transformation of human society. The instability and unpredictability of the climate was the main cause of successive famines between 1315 and 1317, resulting in the loss of many lives. At the same time epizootics among cattle and sheep causing massive casualties across Central and Northern Europe must have had a great impact on the human nutrition. In the mid of the 14th century the Black Death (1347–1352) hit the European continent, causing long-term social and economic changes. The focus of the present paper is on German late-Medieval and Regensburg archaeozoological sites. In two particular finding sites, the zoonoarchaeological evidence suggests that the Black Death had a negative impact on domestic livestock, especially on cattle. In addition supra-regional studies reveal that the impact differed not only between geographical localities, but also between settlement types.

THS-05 Abstract 12

Understanding Black Death: News from Denmark

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Keywords: bioarchaeology, black death, Denmark

Presentation Preference - Oral

The mid-14th century Black Death epidemic reverberated across Europe, having significant impacts on the population which shaped social, economic, and political dynamics in the years to come, and leaving its selective mark on the surviving populations from a genetic standpoint. The epidemic has since captured the attention of an interdisciplinary following of researchers, with core interests in the social and biological impacts and the disease etiology, amongst other areas. It is estimated that up to 50% of the population was lost over the course of the epidemic in Denmark, but up until now little bioarchaeological or molecular work has been done on the disease in Denmark. As an acute infection, the Black Death epidemic left no diagnostic anatomical signs on the skeletal remains of medieval populations. Thus far, our understanding of the epidemic relies on historical accounts and on modern clinical understandings developed from more recent outbreaks of bubonic plague (a disease caused by Yersinia pestis, which is one of the prime contenders for the causative agent of Black Death). In reality, the causative agent of one of the most significant epidemic crises in recorded history is still an incredibly contentious subject, and our understanding of the circumstances affecting the health of populations around the period of the Black Death epidemic is limited. Yersinia pestis has been identified in Black Death cemeteries in Europe, but thus far, no published work is available from Denmark. By building a better understanding of the pathogen load of the populations in Denmark at the time of the Black Death crisis, as well as both before and after the epidemic, it will be possible to obtain a better understanding of the role Yersinia pestis may have played in the population, and of the immune changes and responses to the epidemic. The current paper presents preliminary results from an international team combining bioarchaeological and molecular methods to gain a better understanding of the epidemic patterns surrounding the Black Death epidemic in Denmark.

THS-05 Abstract 13

A demographic history of the plague bacillus revealed through ancient Yersinia pestis genomes

Author - Spyrou, Maria, Max Planck Institute for the Science of Human History, Jena, Germany (Presenting author)

Keywords: black death, yersinia pestis, plague

Presentation Preference - Oral

1317, resulting in the loss of many lives. At the same time epizootics among cattle and sheep causing massive casualties across Central and Northern Europe must have had a great impact on the human nutrition. In the mid of the 14th century the Black Death (1347–1352) hit the European continent, causing long-term social and economic changes. The focus of the present paper is on German late-Medieval and Regensburg archaeozoological sites. In two particular finding sites, the zoonoarchaeological evidence suggests that the Black Death had a negative impact on domestic livestock, especially on cattle. In addition supra-regional studies reveal that the impact differed not only between geographical localities, but also between settlement types.
One of the most devastating events in human history was the second plague pandemic, which began with the Black Death (1347-1353). Sporadic outbreaks of plague continued in Europe until the 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.
of eastern Croatia, including other techniques of remote sensing such as satellite infrared images, resulted in discovery of many newly-discovered tell sites. The huge amount of data obtained by aerial cyclical recording and remote sensing has been related to the data obtained by field surveys. Such large datasets require to be structured into GIS databases (Big Data issue) which will make the basis for a brighter image of the prehistoric landscape in the eastern Croatia.

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**TH5-06 Abstract 03**

**Exploring the subsoil of the wide area of Mont'e Prama**

**Cabras, Sardinia, Italy**

Author - Dr. Trogo, Antonino, University of Cagliari, Cagliari, Italy (Presenting author)

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Keywords: Mont'e Prama, Multichannel Geronradar, Wide Area Prospection

Presentation Preference - Oral

40 years ago, an archaeological discovery occurred by chance in the Mont'e Prama region situated near the village of Cabras, in the Sinis peninsula (Sardinia, Italy). Only recently (March 2014) after a long difficult restoration the famous stone statues of Mont'e Prama, were presented to the public in two different museum contexts (Cagliari and Cabras).

The old archaeological digs concluded after performing excavations tests and trenches in every direction with the idea that the discovery was accidental and did not extend further. From 2013 to 2015 a wide geophysical campaign was carried out both in the archaeological site of Mont'e Prama and its surrounding areas.

During 2014, an archaeological dig (20 x 10 metres) was done on the basis of the geophysical results. This digs gave very important findings of various kinds like tombs, baetuly of great visibility, remains of sacred places and many intact stone statues that show the existence of what is not visible in the area excavated. The analysis of the measurements was done on the basis of the geophysical results. These new findings give us the possibility to try an interpretation of the results also in the unexcavated areas.

Starting from these remains, all the GPR data acquired during the entire survey, from 2013 to 2015, over an area of about 12 hectares, were analyzed to detect patterns which matched those identified in the excavated area. Basing on this kind of approach, it was possible to try an interpretation of the GPR data also in the unexcavated areas.

The obtained results show that the new archaeological shapes are flatter and more extensive than those observed in association to tombs in the excavated area. As in the excavated area, these kind of anomalies are often observed along linear paths in NNE-SSW direction. These alignments are the most common and widespread with respect to the known archaeological area.

Some other anomalies, scattered over the investigated area, display shapes similar to those from baetuly. Another frequent pattern was also recognized but without direct correspondence to those from the dug area. These 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 GPR data to an area wider than the investigated one. Actually, the area investigated from the archaeologists is less than 1,000 square metres that is very small if compared to those surveyed by GPR (about 130,000 square metres).

The whole pattern and extension of archaeological remains show that in the site of Mont'e Prama the archaeological area is wider than the excavated one. It is plausible to suppose that tombs and other kinds of anomalies exist at least for hundreds of metres both northward and southeast from the archaeological digs.

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**TH5-06 Abstract 04**

**Using LIDAR in Normandy: a global changing in perception of territorial organization in Antiquity**

Author - Fajon, Philippe, Ministère de la Culture, Rouen, France (Presenting author)

Co-author(s) - Lapetit, Thierry, Ministère de la Culture, Rouen, France

Keywords: LIDAR, Seine valley, Normandy, Territorial organization since Gaulish period

Presentation Preference - Oral

In years 2010-2011, a LIDAR survey campaign was led by the « Group of Public Interest Seine- Aval » (GIP-SA) from the upstream of Rouen to the English Channel with the aim of drawing up accurate topography of the Seine valley and watershed adjoining the river. This data, available on over 1100 km², have for primary purpose of anticipating the rise of sea level, with the global climate change, by calibrating the defense structures against the sea accordingly.

This very appropriate survey campaign had covered the public forests and also numerous private woods of lesser importance. The data, corrected for the local topography and construction with circular enclosed settlements in western Hungary, Lower Austria and Slovakia. The results obtained so far show an increasingly large number of registered sites of the Sopot culture, including a large number of newly-discovered tell sites. The huge amount of data obtained by aerial cyclical recording and remote sensing has been related to the data obtained by field surveys. Such large datasets require to be structured into GIS databases (Big Data issue) which will make the basis for a brighter image of the prehistoric landscape in the eastern Croatia.

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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 different 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 comparison of a set of airborne LIDAR data with others published in this particular methodological approach. By analyzing these data tools to different landscapes, terrain types and vegetation canopies, we can outline the potential and limitations of it. On that basis, we can then develop a predictive model for its use when studying Roman military sites such as temporary/marching camps. This technique allows us to map archaeological landscapes as a whole, so we need to develop different strategies to increase the visibility of certain types of features in the landscape. Landscape is not just a messy amount of archaeological features, but a palimpsest of multiple temporalities we need to read and understand.

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**TH5-06 Abstract 06**

**Assessing ephemeral protohistoric occupation by off-site geophysical prospection in Calabria (Italy)**

Author - Da Neel, Wiele, University of Groningen, Groningen, Netherlands (Presenting author)
Between 2011 and 2014 the authors investigated in detail the prehistoric land use and occupation of the Ragnell 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 the prehistoric settlement and land use. Here we report on only one aspect of this wide-ranging project, namely the use of geophysical prospection as a means to avoid undue focus on known ‘sites’ and/or elevated-density peaks in the archaeological surface record.

We first present the experimental application of magnetic-based geophysical techniques for the detection of ‘non-sites’, i.e., archaeological features without any apparent surface expression, in three landscape zones with different geology, morphology and soils, and with potentially different archaeological records. In the sandy and gravelly soils of the foothill zone bordering on the coastal plain of Sybaris (100-400m 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 (not foundations) detected on known prehistoric surface sites, and show that settlement densities have been seriously underestimated. At the Monte San Nicola Hiltop, a large-scale magnetometer survey on the sixty soils of the Plio-Peistocene marine terraces landscape (50-550m asl) resulted in a set of circular pit-like anomalies which, after an intensive field-walking 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 erosive upland valley at Contrada Madalena, where soils consist of schists and marls (700-1000m asl), large-scale on- and off-site magnetic gradiometry did not result in any archaeological features. However, some seemingly natural magnetic anomalies turned out to have a complex genesis which is still relevant to our understanding of the archaeological surface record. Besides these intensive geophysical studies, we also collected long transects of magnetic susceptibility measurements in all three landscape zones to determine the geological baseline of the area and to compare any anthropogenic and natural magnetic anomalies which would be distinguishable. We discuss several examples of gridred and ungridred on-site MS surveys to demonstrate the effect and implications of this approach.

Remotely Visible? The Search for Communities within the Irish Landscape

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 considerable expansion of ecclesiastical structures and in a complex period of political and social change. This complex period has been subject of many (settlement) surveys in prior years but has never been covered by a macroregional non-destructive (remote sensing, geophysical) study. The project is enthusiastically oriented towards existing Archaeological Record of Poland (AZP, a nation-wide archaeological mapping programme based on the sole application of field-walking) results as a valuable source of complementary (historical-cultural) data that may be an important corrective factor in a holistic interpretation of acquired non-invasive datasets. Despite this general eagerness it needs to be noted that data derived from the AZP programme will require 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 oversee the need for change (e.g. aerial prospection as described in: Rączkowski 2005, Tradition in Power: Vicious circle(s) of aerial survey in Poland).

Non-invasive techniques in Poland are viewed as pre-exavation 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 pigeons 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 underestimated potential. Landscape studies take into account data from territorial units unfaithful even to rescue excavations, allowing the study of large spatial structures within macro regional contexts. They also deal with important cultural activities that do not manifest in clear physical forms. Indeed, non-destructive methods mostly fail at procuring material culture and chronological evidence, however they excel in the recognition of cultural features not definable by traditional approaches and also shed new light on heavily researched subjects, often dramatically changing their interpretation.

The integration of new methods and approaches is a topic of a long and heavily polarised national debate with a growing group of strong proponents and even more opponents. It is focused on the justification of non-invasive techniques in archaeology. Main arguments “against” revolve around pointing out that lack of chronological data makes excavations necessary anyway, therefore making i.e. geophysics a costly extravagance, draining funding from “real archaeology”. Not enough thought is given to 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 subjective perception has given birth to the term “Hidden Cultural Landscapes”...

Discovering a ‘new’ late Iron and Viking Age landscape along Varde Steam using aerial archaeology

A recent aerial archaeological effort in Denmark - Aerial view of the past (translating) - has provided registrations of a number of new sites. 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 Late Lesser Poland Upland” project. The project’s study area is an area extremely abundant with archaeological heritage. However, research in this area has been subject of many (settlement) surveys in prior years but has never been covered by a macroregional non-destructive (remote sensing, geophysical) study. The project is enthusiastically oriented towards existing Archaeological Record of Poland (AZP, a nation-wide archaeological mapping programme based on the sole application of field-walking) results as a valuable source of complementary (historical-cultural) data that may be an important corrective factor in a holistic interpretation of acquired non-invasive datasets. Despite this general eagerness it needs to be noted that data derived from the AZP programme requires a critical approach. AZP remains unfortunately resilient to attempts of modernization, both from a theoretical and practical perspective, where the perceived limitations of other (usually non-invasive) techniques oversee the need for change (e.g. aerial prospection as described in: Rączkowski 2005, Tradition in Power: Vicious circle(s) of aerial survey in Poland).

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One interesting feature of the 15 settlements along the Varde Stream system mainly links to an almost preplanned structure. The settlements are situated along the stream with approximately 1 km of distance between each other. This particular situation offers considerably from other areas in West Jutland where the settlements are situated more sparsely. The Varde stream settlements are located mainly on the north side of the meadows that runs along the stream and allows for a utilization of both the meadows and easy access to the bay and the Wadden Sea. The settlements are registered mainly as pit-house cropmarks, and a few display longhouses in combination with pit-houses. The pit-house is the common element, a feature that often is connected with crafts. The spatial location along the stream does seem to add to such propositions, but the interesting questions relate to factors of control and power. Did someone force this structure on the settlements or does the settlement location indicate a normalized resource area? Do the pit-house sites indicate settlements or do the sites represent a specialized function? These questions are of great importance for this particular period in the Danish prehistory, where it is theorized that the early steps towards state formation occur. These processes are often linked to the central places and the power we surmise they must have had due to exceptional material culture. Now, due to the aerial archaeological data, it might be possible to contribute to, or deconstruct, these assumptions.

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TH5-06 Abstract 10

The 16th century In Depth Defenses of the Nissan River Valley Revealed by Remote Sensing

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Presentation Preference - Oral

In the late autumn of 1567, during the Nordic Seven Years War, a large Danish army crossed the border and marched into southern Sweden, wreaking havoc on the lands of the enemy. The outnumbered defenders were unable to offer any serious resistance for about a week, thus giving the invasion force free access to the Nissan River Valley – one of the main roads to central Sweden. From the places where the various units 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 “abandoned” in the written sources. However, this could have been avoided. A well planned system for defense in depth was established before the war. Blockhouses and earth-works 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 outnumbered defenders lost in hammers 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, aerial surveys, Lidar and GPR it has been possible to trace both the preparations made by the Swedish forces and the tracks of the Danish army. Careful analysis of Lidar data explains why certain sites were chosen as defensive positions or used for temporary camps. It has proven to be the most effective method for mapping settlements that vanished during the events 450 years ago. The importance of remote sensing for the Getarygen 1567 project cannot be overestimated. In a densely forested landscape, very different from what it looked like in the mid-16th century, modern techniques have made it possible to investigate a military campaign and even interpret its consequences. By doing so, we can begin to understand the true conditions of the local population in a border region. People that were subject to recurring warfare and destruction.

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TH5-06 Abstract 11

Above and below the surface. The use of Remote Sensing in studying the former battlescape

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Keywords: Central Poland, Great War, Remote sensing

Presentation Preference - Oral

“AIRCRAFT REVIVAL OF MEMORY OF THE GREAT WAR. MATERIAL REMAINS OF THE LIFE AND DEATH IN TRENCHES OF THE EASTERN FRONT AND THE CONDITION OF THE EVER-CHANGING BATTLESCAPE IN THE REGION OF THE FLAUKA AND BIZA” is the scientific project, which reveals that aerial and terrestrial remote sensing can be extremely useful in reflecting also recent tragic episodes in the history of human and landscapes entanglement. Three seasons of research made us realize how little is known about the material dimension of the Eastern Front of the Great War, despite numerous written sources. In our presentation we will focus on showing the ways in which the Advanced Remote Sensing Techniques can reveal the enormous amount of information as well about soldiers who found themselves in trenches of Great War and local communities touched by that war as about things and landscapes. We will try to expose, the fact, that archaeological methods including advanced remote sensing techniques are adequate and universal - regardless of whether they relate to material remains of PaleoHunt or last century soldier’s activities - only as long as they are driven by the relevant question without it, we never get a relevant answer. The area of our field of research covers over 300 km2. Our practices have enabled us so far to produce the questions which can give us an insight into the ways in which the fellowships and clashes of the soldiers, their life and deaths, influenced the analyzed landscape between 1914 and 1919. We will present the detailed results of archaeological research on selected sites related to Great War and recognized via aerial photography, Lidar and geophysical surveys. By showing the cemeteries and remains of no man’s land in two different conditions – well preserved in woodland and destroyed by agriculture - we will elaborated the problem of matching the particular Remote Sensing Technique to particular environmental conditions and necessity of enriching the traditional methods of excavations with Advanced Remote Sensing Techniques in order to gain a chance for more complete and complex understanding of ever changing landscape.
Science and multidisciplinarity in archaeology

In Crimea with the magnetic survey in 2014-2015

In the chamber of the crypt detected 8 adults burials, arranged in two tiers one above the other. The later burial of the tomb chamber. Of these, in relative anatomical order remained only one skeleton, and the rest were in a fragmented state.

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 was located in a tangent position 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 admixing 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. troughs and spades

Author - PhD student Daubaraus, Mantas, Lithuanian Institute of History, Vilnius, Lithuania (Presenting author)

Keywords: GIS, landscape archaeology, LiDAR

Presentation Preference - Poster

An ongoing research project focused on Varreia region (western Lithuania) is working towards understanding the use of prehistoric (Mesolithic, Neolithic, Late Neolithic) landscape in this area of 274 km². The approach for surveying for new sites has been employed by means of GIS and LiDAR modelling as well as actual excavations. Here we present primary results of this endeavour as well as shortages of GIS and LiDAR modelling if it isn’t 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 necropolis of the settlement Djan-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 stucco vessels, more than 3 thousand of different types of beads, many iron objects and their fragments. Wares made of bronze and white metal are presented by coin and various ornaments, including fibulas, some of which are very rare in the Northern Black Sea. It also was found one hundred and eleven small gold items of women’s dresses decor, as well as fragments of golden plaques and belt details.

When clearing the space for the next burial. Accompanied the deceased burial items presented with beads, simple, red lacker and stucco pottery, iron knives, rare types of fibulas, arrowheads, lead rings, pendant made of yellow metal, moon-shape amulet, plaques and belt details.

Obviously, the people, who are represented by these bone materials, were first buried in the crypt. Later their remains destroyed, when cleaning the space for the next burial. Accompanied the deceased burial items presented with beads, simple, red lacker and stucco pottery, iron knives, rare types of fibulas, arrowheads, lead rings, pendant made of yellow metal, moon-shape amulet, plaques and belt details.

The investigated crypt was probably used during the second half of I c. BC - first half of I c. AD and refers to the late Scythian archaeological culture.

Work was carried out by the grant RFBR № 14-06-90430 “Study of underground ancient necropolises of the Western and Eastern Crimea with the help of magnetic survey”.

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TH5-06 Abstract 15

Innovations in hardware and software for high resolution geophysical surveys

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Keywords: Data processing, Geophysical prospection, Open source GIS

Presentation Preference - Poster

Among the many types of sensors available for geophysical surveys, gradiometers, used to detect minute fluctuations in the Earth’s natural magnetic field caused by buried objects and structures, have established themselves as a particularly robust and efficient technology. Our contribution showcases state of the art gradiometer hardware, consisting of multi-sensor arrays of gradiometers, and its application in the fast and detailed prospection of large sites and areas of interest. Advances in sensor design and electrical shielding allow for extremely close spacing of gradiometers and achieve a data density that rivals that of LiDAR. Highly integrated sensors deliver positional and inertial (velocity and rotation) data in addition to the gradiometer readings. These can be used to derive secondary data products, most importantly accurate and high resolution digital elevation models (DEMs). In looking for a solution to process the millions of data points produced by our hardware setup, we found that existing software packages were not capable of the high performance and lossless operation that we required for developing our own solution in open source GIS, leveraging the flexibility and standards compliance of that platform. The toolset we developed and integrated into GIS includes highly optimized tools for data import, error correction and interpolation. In summary, our integrated hardware and software solution allows for fast and cost-effective geophysical prospection at extremely high resolution with all data processing done transparently in open source GIS.

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TH5-06 Abstract 17

Identifying and Evaluating Neolithic Sites in Italy Using Aerial- and Ground-Based Remote Sensing

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Keywords: early agriculture, remote sensing, Tavoliere

Presentation Preference - Poster

The Tavoliere of northern Puglia (southern Italy) was a dense area of early agricultural settlements in the Neolithic (ca. 6200-4000 BC) of western Europe and was, probably, the point of introduction into Western Europe of farming. Several hundred sites with ditched enclosures were initially identified from aerial reconnaissance photography following WwII, with more than 800 into today in an area of several hundred square kilometers. Starting in 2013, we have conducted walking surveys of more than 25 sites, collecting about 1270 ceramic artifacts as well as many obsidian and flint tools, and 70 clay samples from nearby watercourses. These have all been analyzed using a portable X-ray fluorescence spectrometer, specifically for trace elements, with clear groupings of ceramics (which include non-diagnostic coarse wares, Impressied Wares, painted coarse and medium wares, Masseria La Quercia wares and Passo di Corvo fine wares) and a suggestion of some south-to-north movements. Most of the obsidian comes from the Aeolian island of Lipari (about 330 km to the south), and about 10% from Palmarola (about 230 km

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TH5-06 Abstract 06

Science and multidisciplinarity in archaeology
to the west). These data have already expanded our understanding of socioeconomic developments in the Tavoliere during the new wave of life of the early Neolithic.

In 2015, in order to select sites for future excavation, advanced remote sensing was conducted in order to assess the precise location and preservation of the prehistoric ditches, considering the potential damage caused by modern deep-plowing since the original aerial photographs were taken. A remote-controlled unmanned aerial vehicle (UAV) and ground-level magnetometry/ electrical resistance tomography were used at several sites following the harvesting of the fields. A fixed wing SenseFly elbee UAV was used to create near-infrared (NIR) imagery at four sites: two around Lucera in the northwest of the Tavoliere, one near Foggia in the center, and one in the southwest near Cingolasa. Photogrammetry produced a high-resolution (10 cm/pixel) digital terrain model. The magnetometer was used in transects of 20 x 160 m at two of these sites (Posta Barone Grella in the south, Posta del Giudice in the north), and was highly successful in showing both boundary ditches and internal structures. Additional remote sensing is planned, potentially at different times of the year and prior to harvesting to identify optimal conditions for its use in subsurface site prospection.

TH5-06 Abstract 18
Geophysical and Archaeological research on Late Roman Iron-smelting site at Virje (Croatia)

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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 (3./2, and 1st century BC) were discovered. Additionally, geophysical results obtained from aerial photography in combination with ground control points was compared with an archaeological site Virje is situated in the Croatian lowland, on the right bank of the upper course of Drava river. 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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 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 (bilateral symmetry: differential expression in the anterior versus posterior dentition) can provide insights into the intrinsic toughness of the food consumed as well as the extent of food processing. However, this method cannot provide direct information on the actual foodstuff that entered the mouth. The analysis of dental calculus dietary microdebris can 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. While 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 deriving 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.

THS-07 Abstract 02
PaleoNutrition, Coprolites, Dental Calculus, and the Celtic Curse
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Co-author(s) - Konz, Barbara, PaleoResearch Institute, Golden, United States of America
Keywords: dental calculus, diet reconstruction, nutrition
Presentation Preference - Oral

In the first study of coprolites and dental calculus from the same individuals, we examine and compare dietary reconstruction from these two proxies. A population of over 500 individuals from two Early and Late Christian cemeteries in Huesca provide a human osteological record against which to compare the dietary proxies. The skeletal remains yielded evidence of numerous anomalies including crania orbitalia, suggesting the possibility of iron deficiency anemia, and spinal fusion typical of ankylosing spondilitis, which was rare. Approximately 10% of the individual yielded coprolites, which were examined for pollen, phytoliths, macrofloral remains, and faunal bone. The resulting dietary record was compared across males and females and by age group for both components of the diet and dietary breadth. Diet included a grain (sorghum), multiple vegetables and fruits indicating agriculture, and meat (crocodile, pig, and hare). 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 was severely limited in breadth. Comparison of these two proxies indicates a high degree of correspondence. In specific, macroscopic dental wear provides an overall picture of the wear accumulated on the teeth throughout the life of the individual, and its degree and pattern (bilateral symmetry: differential expression in the anterior versus posterior dentition) can provide insights into the intrinsic toughness of the food consumed as well as the extent of food processing. However, this method cannot provide direct information on the actual foodstuff that entered the mouth. The analysis of dental calculus dietary microdebris can 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. While 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. 

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THS-07 Abstract 03
Non-Destructive Trace Element Analysis of Human Bones to Examine Diet and Mobility
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Co-author(s) - Zand, Joost, Department of Prehistory and Archaeology, University of Amsterdam, Madrid, Spain
Keywords: ancient diet, bone chemistry, elemental analysis
Presentation Preference - Oral

The theoretical basis for elemental analysis of human bone to study diet and mobility is well-established; yet until recently the number of studies done is few and far between. Instead, analyses of carbon, nitrogen, oxygen, and strontium isotope analysis have dominated “bone chemistry” studies over the last 25 years. Nevertheless, elemental analysis of calcium (Ca), iron (Fe), barium (Ba), strontium (Sr), lead (Pb), zinc (Zn), arsentic (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. Indeed, 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 in4

In sickness and in health. A community in death from a Neolithic Megalithic tomb (La Mina, Spain)
Author - Rindlisbacher, Laura, Integrative Prehistory and Scientific Archaeology, Basel, Switzerland (Presenting author)
Co-author(s) - Rojo Guerra, Manuel A., Department of Prehistory and Archaeology, University of Valladolid, Valladolid, Spain
Keywords: human bones, Neolithic, isotopic analysis, copper mines
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-foragers from the Birnirk period (AD 500–900) to the present day. Interpretation of the radiocarbon dates has been hindered by radiocarbon offsets, caused by marine resources, in the diets of humans and mammals sampled for radiocarbon dating. Analysis of ancient human from the Point Barrow vicinity have thus far provided high δ13C values between −15.7‰ and −12.9‰, and high δ15N values between +17.7‰ and +22.4‰, indicating diets that are very rich in marine protein. Radiocarbon ages from marine-derived carbon will be anomalously old if not corrected for the Marine Reservoir Effect (MRE), the radiocarbon age offset between contemporaneous marine and terrestrial carbon. Modern MRE values from the Alaskan Arctic are highly varied, from several hundred to over a thousand years, due to the extended residence time of 14C in oceanic environments. It is questionable how reflective modern values are of those from the past because changes in upwelling, climate, and ocean currents will inevitably result in changes in local MRE values through time. Here we present new temporally spaced 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.

THS-07 Abstract 05
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Author - Rindlisbacher, Laura, Integrative Prehistory and Scientific Archaeology, Basel, Switzerland (Presenting author)
Co-author(s) - Rojo Guerra, Manuel A., Department of Prehistory and Archaeology, University of Valladolid, Valladolid, Spain
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The Neolithic tumulus of La Mina (Alcubilla de las Peñas, Soria), dating to 3890-3660 BC, is one of the unique grave monuments of the Iberian Peninsula. After the communal burial chamber had been sealed, the structure was dismantled, dismembered and monumentalized, thus becoming both a ceremonial site and territorial landmark. The tomb and its artifacts, 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 (n=20) were commingled and highly fragmented due to the postburial remodeling, yet the osteological analyses still revealed decisive insights into the former community (Rindlisbacher, 2015).

Neolithic megalithic tumuli in Spain and other European regions held only a select group of individuals from among the communities that built them. In La Mina, it becomes apparent that the life courses as well as the social status of the individuals had an impact on the decision whether or not someone was to be buried in the communal megalithic chamber. Different demographic profiles emerge for the women and men buried there, hinting at separate social roles between the sexes. There is evidence that individual health or resilience after severe trauma might also have had an influence on the selection. Especially interesting are the distinct patterns of deficiency as well as the traces of infectious diseases which again vary between the sexes. The combined study of the demographic profile, pathologies, aDNA and the dietary data obtained in an ongoing stable isotope analysis will allow unique insights into the life histories and the health status of the individuals represented in the monumental monument of La Mina and widen our understanding of such sites in general. The full potential of investigations concerning past communities can only be obtained by an integrative approach encompassing archaeology, physical anthropology as well as further bioarchaeological procedures which will still continue for the Megalithic tomb of La Mina.

References:

TH5-07 Abstract 06
A Relationship between Diet and Burial Rite at Neolithic Oslonki 1: d13C and d15N studies

Author – Dr. Budd, Chelsea, Bournemouth, UK (Presenting author)
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TH5-07 Abstract 07
Diet/health and Culture: Females vs Males

Author – Dr. Koepeke, Nikola, University of Zurich, Zurich, Switzerland (Presenting author)

Keywords: gender, long-run trajectory, net nutrition

Presentation Preference - Oral

In order to investigate diet and health in archaeological context one interdisciplinary concept – besides chemical and bioarchaeological research that provide information on specific circumstances in case studies – is the anthropometric approach, combining skeletal material and econometric methodology. This is a useful complementary tool, as the data compilation is not destructive as well as less expensive and, thus, less limited than for more complex methods. Employing human remains enables one, on the one hand, to distinguish between male and female individuals, constructing a masculinity index. And, on the other hand, to reconstruct mean height of a population as proxy for its net nutritional status. Correspondingly the anthropometric measure captures how well a society is able to provide adequate living conditions for the population (Kornos, 1996). Essential fact is that diet and health (subsumed as the net nutritional status) affects directly on 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 patriarchally organised gender-related inequality potentially meant a disregard of the female part of the population (Horrell, Meredith & Oxley, 2009). Female discrimination can result in either immediate feminica after birth (George, 2006; Klaassen & Wink, 2002; Otsa, 2006) or in the general neglect of girls on different levels (public endowments, household allocations) concerning diet and health; correspondingly it can result in a declining nutritional status for females and their male contemporaries during their growth years. If significant this affects height dimorphism and health disparities later in life (Bogin, 1999; Ewalt & Tanner, 1978; Frongillo & Begin, 1993; Harris, G. 1999; Maciá, 2002). In this context, two aspects are of interest for the long-run development of well being of the total population: (1) the variation in gender inequality and its immediate effect on the net nutrition outcome. (2) the potential of an extended burden of malnutrition in females affecting also the whole next generation – via hampered foetal development of either sex due to the small uterus effect and inadequate maternal care also force the offspring to endure malnutrition (Barber, 1999; Currie & Vogl, 2013; Darama & San, 2009), 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 prehistoric and later centuries. In order to do so I compiled observations from the 8th to 14th centuries 

TH5-07 Abstract 08
Gender and diet: experimental study in bioanthropology

Science and multidisciplinarity in archaeology

Science and multidisciplinarity in archaeology

TH5-07 Abstract 06
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TH5-07 Abstract 08
Gender and diet: experimental study in bioanthropology

(these of the cemetery of Larina, France)

Author: Batista-Goulart, Luana, CEPAM - Universidade de Nice Sophia Antipolis, Nice, France (Presenting author)
Co-author(s) – Sábio, Isabelle, INED and CEPAM, Nice, France

Keywords: dental microwear, diet, gender bioanthropology

Presentation Preference - Oral

In the context of gender approach, we conduct an experimental study about the diet of women and men inside the same society. Previous works have shown that, sometimes, in past populations, women and men did not have access to the same kind and same quantity of food. Thus, the aims of our research are (1) to recognize if there is any difference in food consumption between the two genders, observed from the buried population of the cemetery Larina le Mollard (Hières-sur-Imm, Isère, France; 6th – 8th centuries A.D.) and (2) to reclaim a place for women in the past and to better know their role in this society. To conduct this study we use dental microwear from a sample of exhumed skeletons. During the mastication, different types of foods leave different kind of marks on the teeth’s surface. Microwear analysis method has been used in a previous research to determine the diet of two different social groups from the Larina site, but not to compare the two genders. Subsequently, our
research compares the microwear found on women's and men's teeth in order to infer if they had 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 unsettling important new information about the Picts, many aspects of the Pictish past remain elusive. Given the dearth of historical sources and current lack of Pictish domestic sites and animal bone assemblages, very little is known about many economic and social aspects of Pictish lives – such as diet. The stable isotope analysis of bone collagen is useful as a means of assessing past dietary habits, particularly the relative contribution of marine and terrestrial protein to the diet. These techniques also have the potential to investigate dietary variations within groups, such as between different biological sexes or burial types.
Here, we present carbon and nitrogen isotope data from bone collagen from a number of Pictish burials and cemeteries, providing novel insights into Pictish lifeways. Data generated are compared to limited previously published Pictish datasets and to data from other contemporary archaeological British groups. Results suggest limited intra-group dietary variability, and a relatively homogenous diet across the areas studied. Marine fish consumption is low relative to later Medieval and Viking sites in Scotland, and in comparison to contemporary Romano-British samples, but similar to data derived from Anglo-Saxon sites. The conceptual role and importance of fish, rivers and other water bodies to the Picts is also briefly explored (particularly with regards to the positions of cemeteries sites, and the depiction of fish on Class I动员).

TH5-07 Abstract 10
Regional differences in subsistence economy in 16-19th c.c. Lithuania: stable isotope evidence
Author - Skiptaitys, Raminta, Nature research centre, Vilnius, Lithuania (Presenting author)
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Keywords: diet, stable isotope
Presentation Preference - Oral
Regional differences in subsistence economy in 16-19th c.c. Lithuania: stable isotope evidence

Stable isotope analysis is now a "golden standard" for studying variations in the past diet and life history. Previous studies performed in medieval Lithuania have shown that the human protein intake was mostly derived from C3 plants and C3 feeding animals and possibly some freshwater resources with little variation among young and adult individuals (Whitmore et al., 2014).
In this study, stable isotope analysis of human skeletons from different populations representing various regions of Lithuania (16-19th c.c.) was performed. To track dietary evidences, animal bone samples from similar places and time period were analysed as well. The results showed significant differences in stable nitrogen isotope ratios between coastal, urban and inland site communities. Meanwhile, the carbon stable isotope ratios were less variable and showed a strong dependence on the C3 plant environment. Different strategies in subsistence economy could shape the stable isotope signals in these communities. Peasants in the countryside were able to farm their land 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.

TH5-07 Abstract 11
An Osteoarchaeological Study of Health in the Early Medieval Population from Rathfarnham, Dublin
Author - Diasch, Alka Katharina, University College Dublin, Marren, Germany (Presenting author)
Keywords: early medieval, Ireland, osteoarchaeology
Presentation Preference: Oral
A comprehensive osteoarchaeological study of health and lifestyle was conducted of the early medieval skeletal assemblage from Rathfarnham (Co. Dublin). The results of this analysis were placed into one context with the descriptions of the early medieval Irish habitat and nutrition found in historical sources. Furthermore, comparisons were drawn with several Irish and continental European populations from the early medieval to the early modern period which allowed for placing Rathfarnham into a wider temporal and geographical context.
These studies have shown that the population from Rathfarnham was an ordinary early medieval Irish population in which males and females were assigned to different physical works like in other early medieval Irish and continental European populations (Fibiger, 2010, 123 and 128; Novak et al., 2012, 446; Novak, pers. comm.). The diet of the population was a mainly terrestrial one which was typical for the period (Kelly, 2000, 316 and 322; Fibiger, 2010, 127; Lahnne and Delaney, 2010, 48; Novak, 2015, 1304). However, different occurrences of the dental pathologies (dental caries, dental calculus and ante-mortem tooth loss) between the sexes probably indicate slight dietary differences between males and females. The females could have consumed more cariogenic food such as carbohydrates than the males whose diet might have had a stronger protein basis, likewise observed in a composite early medieval Irish population (Novak, 2015, 1298).
In comparison to populations in continental Europe the Irish sample showed a mostly lower caries but a higher dental calculus frequency. This combination of the two pathologies would, according to Šlaus et al. (2011, 588), usually indicate a protein-rich diet. As a result this could reflect a higher significance of dairy products in the Irish diet when compared to continental Europe.
In both, Ireland and continental Europe different frequencies of Schour’s modes in males and females probably indicate a respective allocation of physical labour between the sexes, and the depiction of fish on Class I动员.

TH5-07 Abstract 12
A condition overlooked: the importance of interdisciplinary methods in investigating diet and health
Author - Nelson, Elizabeth, Max Planck Institute for the Science of Human History, Jena, Germany (Presenting author)
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Keywords: Diet, Fluoride, Paleopathology
Presentation Preference: Oral
Diet is a key factor in the health of individuals and of communities, both ancient and modern. In studies of ancient health, termed paleopathology, most paleodiet researchers have focused on estimates of the nutritional quality of diet across space and time. Health, however, can also be affected by environmental dietary factors, including toxic or deficient levels of minerals. We emphasize the importance of rigorous diagnostic differentiation in paleopathology and the multiplicity of factors that may influence an individual’s response to environmental stressors. Our example develops from observations of pathology in remains from the Ray site, a 2000 year old Middle Woodland cemetery from west-central Illinois, USA. Using a previously developed different differential diagnostic for an environmental condition, wherein an abundance of fluoride placed people at risk for poor health, we illustrate the importance of linking environmental, dietary, epidemiological, and physiological factors in developing a well-supported differential diagnostic. We also consider directions for future studies that link molecular biology, geo-chemical and isotopic analysis to knowledge of past fluoride toxicity.
TH5-07 Abstract 13
Understanding food poverty: Lessons from the present and the past
Author - Hunt-Watts, Holly, University of Leeds, Leeds, United Kingdom (Presenting author)
Keywords: Archaeology, Epidemiology, Nutrition
Presentation Preference - Oral
Food poverty in the UK is on the current rise and evidence from reports of public health expenditure highlights both the cost of this problem to the public and the impact that poor diet can have on the social and physical aspects of peoples' lives. There are many disciplines which can be used to examine the effect of food poverty on the British population, but the three involved in the research behind this paper are, nutritional epidemiology, history, and archaeology. Each of these subjects has its strengths and weaknesses that lead to an understanding of 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 present, but more focused 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.

TH5-07 Abstract 14
Diet and environmental changes: an example for medieval Scandinavia
Author - García Pimentel, José Miguel, Valencia, Spain (Presenting author)
Co-author(s) - López Costas, Olalla, Group Earth System Scientists, Universidad de Santiago de Compostela, Santiago de Compostela, Spain
Keywords: Diet, Environment, Scandinavia.
Presentation Preference - Poster
Environmental changes modify constantly agriculture production and the route of certain animal species either by land, sea or air. This study seeks to relate the already isotopic data of 813C and 815N in bone collagen with the variations in the temperature and moisture in Eastern Sweden. Due to the large number of individuals and the published information, the sites of Birka and Sigtuna were chosen for this study. Archaeological sites found during the Viking Age with an important link between both of them. The sample comprises 27 individuals from Birka and 76 from Sigtuna, already published, whose radiocarbon ages cover from 700 to 1700 AD. For this same period, we identified four environmental phases, regarding changes in temperature and humidity in Scandinavia that were reconstructed using different approaches (climatochronology, 6100 studies in speleothems, paleoecological information, ice cores, etc.). The isotopic results show a large variability of the data over time, especially during the first warm phase (ca 700-1100 AD) while data are more homogeneous in the following stages; however, neither significant differences nor a clear pattern in diet along the environmental phases have been detected. As other authors have previously mentioned, further studies need to be highly dependent on the site the individuals belong to. The hard climatic conditions common in Scandinavia as well as rigorous social stratification may have limited the effect of the environmental changes in diet. The possible influence of the reservoir effect of the radiocarbon dating are also discussed. We think it is worth bringing attention to the fact that the few studies have attempted to combine the changes in climate with the isotopic results, so we recommend further research in both fields for a better understanding of their influence in past populations.

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 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 Kıltepe (north Anatolia, Asian region, on the Black Sea coast), Tilü Höyük (south east Anatolia, Urfa region), Bademkaya (south Anatolia, Antalya region), and Bakla Tepe (west south Anatolia, İzmir region). This research is incredibly significant as it is the first time that quantitative scientific methods have been used to address questions and hypotheses about dietary habits in the EBA period of Anatolia. It is the first time that stable isotope analyses have been used to study dietary habits in EBA Anatolia; and is the first project of its kind both in terms of methodology and scale. Analysis of carbon and nitrogen stable isotopes (13C and 15N) was employed on bone collagen from ca. 200 human and faunal osteological samples taken from the Anthropology Lab of Hatay University, Antakya 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 this period 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-mortal cranial traumatic injuries which are indicative of an increase in inter-personal conflict and arguably an increase in organised violence during the period. This is furthered by the building of fortifications and burnt layers at many EBA settlements in Anatolia. Despite the substantial social and socio-political changes during the period, the results show that during the EBA in Anatolia there is a significant degree of homogeneity in dietary habits both at an intra- and inter-site and region level, and across the millennium of the EBA with the results from this project providing a clear C3 base. Furthermore, the results suggest that we can now begin to discuss an ‘EBA package’ with regards to foods resources.

TH5-07 Abstract 16
Diet and identities in a mining community, Sweden - documents and isotopes
Author - PhD student Bäckström, Ylva, Lund University, Lütöborg, Sweden (Presenting author)
Co-author(s) - Dr. Misplanne, J., Uppsala University, Uppsala, Sweden
Co-author(s) - Dr. Britton, K., King’s College, Aberdeen University, Aberdeen, Scotland, United Kingdom
Co-author(s) - Dr. Ingvarsson-Sundström, A., Museaum Gustavianum, Uppsala University, Uppsala, Sweden
Co-author(s) - PhD student Fjellström, M., Stockholm University, Stockholm, Sweden
Keywords: dietary patterns, the Reformation, late medieval-early modern, identities, Salberget mining community, Uppsala Cathedral
Presentation Preference - Poster
This talk explores the link between diets and identities in a mining community in late medieval and early modern Sweden. From a present day perspective we think about diet on an individual level, but in the past diet was something that was shared, and was influenced by a number of factors. This paper aims to introduce a new method of studying diet using these three disciplines, and highlights the value of the approach in examining public health in the past and present, to make informed suggestions for the future. That modern clinical studies and surveys help to form an understanding of the past is indisputable, and the public is made aware of the osteological nature of archaeological research through high-profile cases. The role of archaeological and historical research in understanding and informing modern policies is both less apparent and significantly less explored as a research option. This paper will therefore suggest an interdisciplinary approach to the study of food poverty.

TH5-07 Abstract 17
On the Diet of the Urals Population of the Great Migration Epoch
Author - Prof. Matveeva, Natalya, Tyumen state university, Tyumen, Russian Federation (Presenting author)
Keywords: chemical analysis results of skeleton composition
Presentation Preference - Poster
This report proceeds from 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 Usty-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 earliest population formation of Bakalskaya culture and time of assimilation of Kushnarenkovo, Sargatka, Kashino, Karim culture groups and Middle Asia genesis group. The fact of the assimilation was based on the archaeological and anthropological sources. There are differences values of ash and basic 15 minerals (Ca, P, Mg, Fe, Mn, Zn, Sr, Cu, Ni, Cr, Co, Pb, Mo) as markers of different data. Macro- and microelement composition of bone substance of buried people is shown as mean of selection as a whole and separately for men and women, as well as for children groups. The statistic significant differences displayed in greater values of Zn, Cu for men and children. There was ascertainned and lack of consistency with the past dietary traditions held the published data of culture of Sargatka; this lack of consistency was defined by nomadic food tradition of the people buried in Ustug-1 cemetery. There was a suggested idea that there was a relatively good health of populations from the point of view of mineral balance, based on comparison with modern medical data. We can suppose, that some individuals used stagnant water and wore copper decor (jewelry, clothing elements, have used copper cookware) for ashes. The information on the migration of nomads from the steppe zone, which was extracted from archaeological sources, was confirmed by chemical data.
GEARCOARCHÉOLOGY 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 - Dr. Shillito, Lisa-Marie, Newcastle University, Newcastle, United Kingdom (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 identifying and studying occupation surfaces and site stratigraphy in prehistoric contexts is very challenging. For instance, Neolithic sites demonstrate large variability in their stratigraphy. Occupation surfaces are often weakly expressed, mainly characterized by the concentration and presence of artefacts, or not preserved at all, due to natural erosion or recent ploughing. In some cases, only negative features such as postholes, pits and ditches can be detected - for example among LBK Longhouses or West European enclosures. The infilling of pits and ditches is generally related to dumping or to natural post-depositional processes while the function of the pits usually stays unknown (i.e. sunken-floored dwellings, pits, deep pits orichgrotiben). Multi-layered sites, characterised by massive accumulation of earthen building materials (i.e. mudbricks), such as the Bakaian and Near Eastern tells raise a set of additional complications for understanding the stratigraphical record.

The geoarchaeological research sheds new light on these questions. By applying different approaches (i.e. geomorphology, stratigraphic analysis, micromorphology and geochemistry) 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 aim of this communication is to compare the first results of spatial analyses carried out on sites set either on plateau (site of Poupy) or on slope (site of Pussigny).

The fieldwork is being carried out 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 ethnoarchaeological and experimental studies.

TH5-10 Abstract 01
Investigating use of space: Building in the detail: micro-stratigraphies of Neolithic structures at the Ness of Brodgar, Orkney

Author - Dr. McIntosh, J., University of Bradford, Bradford, United Kingdom (Presenting author)
Co-author(s) - Card, University of the Highlands and Islands Archaeology Institute, Kirkwall, United Kingdom

Keywords: micromorphology, occupation surfaces, structure biographies

Presentation Preference - Oral

Since 2004, excavations at the Ness of Brodgar, within the ‘Heart of Neolithic Orkney’ World Heritage Site, have revealed a large complex of monumental Neolithic structures spanning over a millennium of activity. These structures show evidence for complex biographies potentially reflecting both ritual and domestic activity.

Excellent preservation of in-situ deposit sequences comprising occupation and surface layers are complemented by rich and complex artefact assemblages, unique artwork, and well-preserved suites of environmental material.

An extensive and ongoing programme of micromorphological sampling has complemented the excavation strategy within the Ness of Brodgar structures, with the aim of addressing questions of building function and significance, settlement organisation, the use of interior space, and patterns of resource utilisation.

This paper presents the analysis of micromorphological sequences from two key structures currently under excavation: Structure 1 and Structure 8. These vary significantly in size, shape, internal layout, the depth and complexity of surviving deposits, and episodes of remodelling through time. Requiring two very different approaches to sampling, the resulting micromorphological sequences highlight the importance of detailed integration not only with excavation strategy, but also supporting geoarchaeological and environmental techniques. Structure 1 shows a very detailed and clearly defined sequence of interior deposits which provide a unique insight into the complex biography of a building which saw extensive remodelling through time. Here, the micromorphological sample set examines an extensive vertical sequence of in-situ deposits adjacent to the central point of the structure and its large monumental hearth. These span several episodes of carefully constructed surface which alternate with occupation related deposits rich in anthropogenic inclusions. Of particular interest is the changing composition of these surface constructions through time, and the potential relationship of this to internal layout and the remodelling of the building as a whole – do the compositions of these surfaces have a significance beyond the practical?

Contrasting with this is the sample set from the very different Structure 8. Over 18m long and featuring a large and diverse set of features such as cists, hearths, internal divisions and recess areas indicating potential specialist activities. Structure 8 shows a far thinner sequence of surviving internal deposits - the result of a short life span due to subsidence and collapse. This prompted a very different micromorphological sampling strategy. Individual samples precisely located at points of interest within and adjacent to both key structural features, but locations referencing the interior geography of the building provide an opportunity to explore both the micromorphatics of specific areas within Structure 8, and the use of space within the building through time.

TH5-10 Abstract 02
They are still there! Identification and characterisation of Neolithic surfaces in Paris Basin

Author - PhD Onfray, Maryline, UMR 8215- Trajectoires, Paris, France (Presenting author)
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Keywords: Late Neolithic, Occupation surfaces, Soil micromorphology

Presentation Preference - Oral

Late Neolithic soil occupation patterns in southern Parisian Basin are still not completely understood. In inhabited contexts, the characterisation of the architecture and the distribution of activity areas is really difficult. Few years ago, domestic sites were only known by few excavated sites. Nevertheless, very thin and massive anthropogenic layers were regularly discovered. These layers contain materials (potsherds and lithic fragments (flints)) which form more or less thick concentrations. They are located in different topographic positions: plateau, slope, bottom of the valley. The older are dated to the microlithic I phase and their number increases during the late Neolithic. They were judged as disturbed layers due to posterior erosion or modern ploughing but their real nature was not proved by extensive analysis. The question of their nature is still discussed: are they disturbed layers or preserved occupation surfaces? Until now, the second hypothesis was only suggested by the preservation degree and the spatial and stratigraphic repartitions of artefacts. Few geoarchaeological research were carried on this subject. Current research based on soil micromorphology lead to the identification of formation processes of these anthropogenic layers, using spatial samplings. It consists to sample in different points inside and outside the concentration of artefacts, in order to make observations in sedimentary record. The micromorphological analysis shows that these layers are real preserved occupation surfaces. Moreover, they reflect different use of space which record several activity areas, inside or outside the buildings. The development of these occupation surfaces are highly influenced by the presence and the distance from the earthen and stone structures.

The aim of this communication is to compare the first results of spatial analyses carried out on sites set either on plateau (site of Poupy) or on slope (site of Pussigny).
Sedimentary accumulation in a canal reflects mostly anthropogenic process (runoff intensity control, water inflows rhythm, regular cleaning) related to his function, especially in the case of an irrigation canal. Sedimentary accretion in open-air hydraulic structure is also marked by natural process controlled by environmental conditions (hydrology, climate) at one point in time. As a result, sedimentary fills of canals provide high-resolution pedo-sequences for fine restitution of closely intertwined socio-economic dynamics and palaeo-environment. The restitution of the operating history of hydraulic structures as canals required a geoarchaeological approach based on all-scale analysis of their sedimentary fills of strata. The Geoarchaeological study of Early Bronze Age canal (dated by OSL from 4.5 ± 0.4 Ky) aims to research under polarizing microscope and identify pedo-sequences and sedimentary diagnostics features relevant of: (1) anthropic process of water management linked to the canal building and operating, runoff implementation and maintenance; (2) natural process expressed by drying or freeze features reflecting local and micro-regional hydro-climatic conditions relative to semi-arid environment. Forward, the sequencing of these data allows a fine restitution of the operating dynamic of the hydraulic structure in the frame of environmental past conditions in its socio-economic context.

To date, more than 600'000 artefacts and 900'000 animal bones have been recovered, mostly from infilled storage or cellular pits. Numbering more than 500, these represent the most frequent archaeological structures in the settlement. Recent interdisciplinary investigations showed that the majority of the archaeological findings are associated with dark sediments which contain plenty of inorganic and organic components such as ashes, clay and burned loam fragments. Those dark, calcareous sediments may clearly be addressed as "occupation layers" and form a major source of material used to fill in the settlement's pits. Geoarchaeological investigations showed that the pits were infilled in a short time in the course of just one or two distinct events. Thus the question is raised as to how and where those dark sediments were formed before they were used as backfill.

This question will be addressed by means of micromorphological and geochemical analysis of well-preserved sedimentary 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 anthropic 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 view of syn- and post depositional processes at Basel-Gasfabrik.

This will permit the reconstruction of waste disposal practices, activity areas and resource management, which is essential for interpreting assemblages like the inventory of an infilled pit. Without knowledge of how (prehistoric) communities handled their resources and their waste, of what happened with used or discarded materials, with accidentally or intentionally broken objects, with fuel and organic waste, with dung and human faeces, interpretations of archaeological features must remain mostly guesswork.

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**TH5-10 Abstract 05**

Geoarchaeological portrayal of decayed dwellings at the Bronze Age settlement of Solarolo (Italy)

**Author**: Peinetti, Alessandro, UMR 5140, Paris, France (Presenting author)

**Co-author(s)**: - Watrat, Julia, INRAP, Paris, France

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**Keywords**: Dwelling, Geoarchaeology, Household activities

**Presentation Preference**: Oral

Since 2006 the University of Bologna has been carrying out archaeological researches in Solarolo, a Bronze Age village located in the southeastern part of the river Po plain, in northern Italy. The preserved stratigraphy refers to the central phase of the Italian Middle Bronze Age (about 1550-1450 BC).

The presence of perishable dwellings, built with wood and earthen materials, that normally don't leave clear traces except for post holes, makes the comprehension of built spaces very difficult. In northern Italy, several types of dwellings – dating back to the 2nd millennium BC - are archaeologically documented.

In order to understand the nature of the buildings and their relationship with courtyard spaces, a spatial geoarchaeological sampling has been carried out in the site. A first attempt, based on soil micromorphology, is here presented: both the inside and the outside of a presumed roofed space are sampled.

The analyses focus on the local pedodietic markers, on the trampling traces and on the provenance and nature of different soil components. The aims of these first observations are to recognize the presence of roofed spaces, to understand the real building of the building floors and, generally, that of the dwellings; finally, they tend also to define the evolution of the building during its life.

In this way we can draw a "biography" of a single built space, useful to understand cultural architectural patterns, not always visible in the macroscopic archaeological record.

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**TH5-10 Abstract 06**

Geoarchaeological investigation of waste disposal practices at the Latène settlement Basel-Gasfabrik

**Author**: Brönnmann, David, University of Basel, Basel, Switzerland (Presenting author)

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**Keywords**: Geoarchaeology, Iron Age, waste disposal practices

**Presentation Preference**: Oral

The late Iron Age settlement Basel-Gasfabrik is located in north-western Switzerland on the left bank of the Rhine River. Since 1911, numerous excavations revealed an unfilled settlement with domed and economic structures covering an area of about 13 hectares and associated cemeteries in short distance. Basel-Gasfabrik is among the large, 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 a Mexican Geoethnoarchaeology

**Author**: Jouttijärvi, Arne, Herr, Virum, Denmark (Presenting author)

**Keywords**: Metalworking, Processes, Spatial analysis

**Presentation Preference**: Oral

Metalworking is often considered only in terms of the primary technological processes involved, but is in fact a complex of processes taking place within a more or less well defined "room" or space. Instead of only focusing on what is going on within the production facility or furnace, it is thereby a network of interdependent cemeteries in close proximity, which further provide a smaller or larger workspace. The workspace can be defined as a building with solid walls, but may also be more undefined, or even a network of independent areas. A workshop might just be defined by the process as "the place where you sit down to work", but the nature of the building and its relationship with courtyard spaces, a spatial geoarchaeological sampling has been carried out in the site. A first attempt, based on soil micromorphology, is here presented: both the inside and the outside of a presumed roofed space are sampled.

The analyses focus on the local pedodietic markers, on the trampling traces and on the provenance and nature of different soil components. The aims of these first observations are to recognize the presence of roofed spaces, to understand the real building of the building floors and, generally, that of the dwellings; finally, they tend also to define the evolution of the building during its life.

In this way we can draw a "biography" of a single built space, useful to understand cultural architectural patterns, not always visible in the macroscopic archaeological record.

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**TH5-10 Abstract 07**

Firing Divices in Tarascan Land, Zipiajo, Michoacán, Mexico:

To a Mexican Geoethnoarchaeology

**Author**: Phd Student Stevanović, Mladen, Paris 1 Panthéon-Sorbonne, Maïskoff, France (Presenting author)

**Keywords**: Firing devices, Mexico, micromorphology, geoethnoarchaeology

**Presentation Preference**: Oral

The firing devices study is largely developed in Prehistoric archaeology. It is obvious that they have an important place and significance, since they often are in the center of the living space. Archaeological excavations on the Malpais Prieto (2010-2014), directed by Gregory Pereira in the context of the Uacuascha Project, uncovered hearths' remains in ritual and domestic contexts. Some of them were treated with a micromorphological approach that revealed various sedimentary facies. It shows a huge diversity of hearth’s histories despite morphologies apparently simple and little diversified. These hearth's micromorphometry demonstrates the existence of different layouts which present traces of repetitive uses, continuous or discontinuous uses and variable intensity of use. This displays an unequal treatment of the combustion structures (in the shaping of the combustion surfaces, the maintenance regularity, in the layout quality...) suggesting various levels of reading. These certainly depend on the statue and the importance of the hearth. To have a better global understanding of them, we undertake an etnoarchaeological project of contemporary fire devices. It will permit to develop the knowledge on the functional history and on the formation processes of the firing, according to technical features (shaping of the mud, application of the material...) and the use of the layout (the choice the combustion atmosphere, the heating intensity, the use continuity, the function of the device and its statue).

Field operations took place in the village of Zipiajo, inhabited by Purepechas who are descended from ancient Tarascan people. Some of the inhabitants of Zipiajo still apply ancestral pyrotechnical practices. Thus, some ceramic cooking devices and domestical devices were sampled with micromorphological protocol. Therefore, this paper will discuss the micromorphological analyses results and the interest of developing a geoethnoarchaeology of firing devices using clay material.

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**TH5-10 Abstract 08**

Use of space in metalworking - Spatial analysis of working areas by systematic soil sampling

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**Keywords**: Metalworking, Processes, Spatial analysis

**Presentation Preference**: Oral

Metalworking is often considered only in terms of the primary technological processes involved, but is in fact a complex of processes taking place within a more or less well defined "room" or space. Instead of only focusing on what is going on within the production facility or furnace, it is thereby a network of interdependent cemeteries in close proximity, which further provide a smaller or larger workspace. The workspace can be defined as a building with solid walls, but may also be more undefined, or even a network of independent areas. A workshop might just be defined by the process as “the place where you sit down to work”, but...
or by the room as seen in medieval buildings serving as multi-purpose workshops. The surrounding landscape and the social context of the "workshop" might also influence its organisation.

New methods of systematic sampling of workshop floors and working areas found at archaeological excavations, together with analysis of process waste, provide a picture of the physical organization of work within "workshop". In this way the different processes going on in a workshop can be defined in detail, as well as the physical place which they took place. Even movements of the craftsmen between the different parts of the workshop might in some cases be visible, for example by the room as seen in medieval buildings serving as multi-purpose workshops. The surrounding landscape and the social context of the "workshop" might also influence its organisation.

Devillers, Benoît, Université Paul Valéry, UMR 5140: Humans and Early Holocene environment in southern Cyprus: investigation at Finikoudes and Ayia Napa. The site of Klimonas, in the district of Limassol in Cyprus, constitutes the most ancient human village in the island. Klimonas was investigated, in 2015, at Recy Le Parc de Référence (Marne), where malacological assemblages of about forty structures have been analysed. The presence of abundant malacological remains within the most structures demonstrates that they have been left by the room as seen in medieval buildings serving as multi-purpose workshops. The surrounding landscape and the social context of the "workshop" might also influence its organisation. All the studied structures have been dug in a forest environment but the proportions of the different molluscan species vary through time. The malacological successions found in Klimonas are in echelon in the reference timeline and dates from the first part of the Holocene in the Paris-Bain and its margins. In light of these reference series, some radiocarbon dating from Roussy-Saint-Loup and Recy are questioned.

Granai, Salome, GeoArchEon, Vieville-sous-les-côtes, France (Presenting author) - 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 Roussy-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 launch of larger-scale investigations, in 2015, at Recy Le Parc de Référence (Marne), where malacological assemblages of about forty structures have been analysed. The presence of abundant malacological remains within the most structures demonstrates that they have been left open after their digging and then filled gradually by a natural accretion of sediment and organic matter. In addition, the composition of molluscan remains within these two sites has enabled to reconstruct the environment and its evolution. All the studied structures have been dug in a forest environment but the proportions of the different molluscan species vary through time. The malacological successions found in Klimonas are in echelon in the reference timeline and dates from the first part of the Holocene in the Paris-Bain and its margins. In light of these reference series, some radiocarbon dating from Roussy-Saint-Loup and Recy are questioned.

Human 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 palaenvironment and palaeoecology of the region. The position, on a slope formed by loess deposits and furrowed by the stream Athaksi, 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 Athaksi valley. The study of a section directly related to the site provides information on the palaeoecology of the site when it was settled and the loess deposits formed by two alluvial fill terraces cumulating 15 meters of height. The alluvial terraces resulted in environmental changes and their study shed light on the climatic conditions and on the river dynamic during their formation. The radiocarbon dates of palaeosols of the two sections under study show that they have been accumulated between the Last Glacial Maximum and the beginning 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 palaenvironmental and fluvial conditions in a long period.

Subalpine soil memory and legacy (French Alps)

Author - Dr. Gigout-Coves, Charliee, University of York, York, United Kingdom (Presenting author) Co-author(s) - Develle, Anne-Lise, EDITEM, Le Bourget du Lac, France Co-author(s) - McGrath, Krista, University of York, York, United Kingdom Co-author(s) - Speller, Camilla, University of York, York, United Kingdom Co-author(s) - Poulelaud, Jérôme, EDITEM, Le Bourget du Lac, France Co-author(s) - Mocci, Florence, Centre Camille Julian, Aix-en-Provence, France Co-author(s) - Walsh, Kevin, James, University of York, York, United Kingdom

Keywords: human activities, legacy, subalpine ecosystems Presentation Preference - Oral

In the Alps, humans used the subalpine area since the Mesolithic: first used for hunting and gathering, then pastoralism suggested since the Neolithic (Gigout-Coves et al., 2014; Ponel et al., 2011; Schuéler 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 pastorial pressure are specific to each site. Mining also developed at high altitude, especially during the Medieval Period (Gaéton 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 and biodiversity (Bosset et al., 2012; Gigout-Coves et al., 2011; Paunet et al., 2015). However, such a broad knowledge of these activities on archaeological sites is limited. We propose to apply geochemical analysis (XRF, OICM, d15N, ...), botanical survey and environmental DNA (eDNA) analyses to 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 a.s.l., French Alps) (Walsh and Mocci, 2011). Samples were also taken at higher altitudes where the pastorial pressure is very low today. Samples from the same area will be used to assess the modification of plant cover linked with the use of the structure. The study of plant cover will include the analyses of plant communities and the plant biomass assessed via eDNA quantification. Moreover, spatial variations in soil geochemical signatures within and beyond the archaeological structures will be used to assess the potential past human activities (pastoralism and mining activity) within the structures.
This poster will present, in particular, results from XRF analyses, which reveal differences in phosphorus (P) content on and off site. We will also detail the ecological preferences of plants relative to the nutrient content on and off site. The presence of certain plants exclusively inside structures demonstrates the influence of the past human activity on the modern ecosystems. These results reveal the soil memory effect link with ancient mining activity. Like soil sediment and peat cores taken around the study area revealed lead pollutions during both, the Roman and the Medieval periods.

The presence of mines used between the 10th and 13th centuries (Py et al., 2014), at least attests the local origin of the pollution for the Medieval Period. These results support the assumption that the lead detected in soils from the medieval cabin is related with the medieval mining activity, the hut being probably used for (stocking and/or metallurgical activities).

**TH5-10 Abstract 14**

**At the Foot of the Cliff - exploring early human occupation of the inlands of southern Italy**

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**Keywords:** geoarchaeological research, archaeology, hilltop settlement site

**Presentation Preference - Oral**

In mountainous landscapes, strong landscape taphonomic processes are ongoing for long periods, detecting and assessing the presence of human occupation can be very difficult. In this paper, the authors, from the University 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 (rippled) limestone rock faces.

We present recently obtained results from the Rural Life in Prehistoric Italy project, which aims to develop innovative 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 Ragoneto River, our study area in Calabria, southern Italy, are located at the tip of such debris slopes covering the foot of South- and East-facing limestone scarps. These remains present as very dark, fine-grained deposits containing fragments of pottery, bone and charcoal interspersed with shell middens. These deposits 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, geoarchaeological prospection and high-resolution archaeological studies) show that such sites contain surprisingly well-preserved remains, including a wealth of environmental data on early subsistence strategies.

The paper focuses on three debris slope sites. Site RB121a was initially exposed by quarrying activities, revealing deposits with pottery, bone, and charcoal; a surface survey of the wider area revealed several more probable artefact scatterings 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, RB15a, is located in a similar South-facing debris slope, but is exposed by an 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 geoarchaeological investigation was to trace anthropogenic criteria, if there were any. Multivariate statistics were performed for a set of 20 variables including element chemically relevant concentration of 16 metals, LOI, pH and MS values. Possible anthropogenic indicators were distinguished. Although the data presented here are site-specific, there appeared to be a remarkable consistency in the suite of variables with those enhanced at sites of known context from different geographic areas and geological environs. 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.

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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 XII century BC revolutionary changes occur in Middle Dnieper area (Ukraine), relating to Cherniaksaya culture. All settlements and villages of Cherniaksaya 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 Zhabotyinsky phase distinguished after eponymous and reference Zhabotyn settlement. New settlements also have a large area - from 10-20 to 100 hectares and are arranged in clusters. All of them have no visible fortifications, but they are located on the topographical plots, which provide natural protection, being surrounded, usually, on three sides by deep gullies.

New research carried out on Zhabotyn settlement provided new information about its topography features and the defense system. In the course of the settlement the ditch was revealed and partially 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. Internal profile of ditch and its constructional 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 century BC. It is demonstrated that the magnetic anomaly of 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. Archaeological excavations proved the infill to be consisted of separate layers, with characteristic magnetic susceptibility, indicating main chronological stages between 8th – beginning of 6th century BC. It is demonstrated that the magnetic anomaly of 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).

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TH5-10 Abstract 17

Transcending disciplines in integrated studies of the Early Iron Age sites in Slovenia

Author - Dr. Črešnar, Matija, University of Ljubljana, Ljubljana, Slovenia (Presenting author)

Co-author(s) - Dr. Mišič, 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 understanding the basic geology of the area, which was studied with the help of ALS derived data. The next step we took was a geological and geomorphological field survey, whereas selected crucial areas were researched also with various geophysical methods, e.g. magnetic method using measurements of total magnetic field by applying corrections of diurnal variations using base station as well as magnetic polarization in gradient mode, GPR method from very low to high frequencies (50-400 MHz), low frequency EM method and measurements of top soil magnetic susceptibility.

The ground truthing of the identified features, natural or anthropological, was then conducted to determine the areas for intensive geophysical surveys, using a range of different techniques and analytical methods, covering wide areas of the settlement and its surroundings, including iron working areas, the flat cremation cemeteries or barrow cemeteries.

With the next step, the geochemical mapping with a pXRF, which we have carried out on one settlement so far, has invited also chemistry into the circle of disciplines, creating the integrated maps of the researched sites. Preliminary conclusions on archaeologically relevant correlations between different data sets are based on multivariate statistical analyses adopted to specific natural settings on metamorphic rocks.

As the last field research step we have applied low- or medium-invasive archaeological methods as drilling or test-trenching. The wide range of data, which was created by applying different methods deriving from various disciplines, has ‘forced’ us into not only interdisciplinary but rather transdisciplinary research. Under such circumstances scientists from various disciplines can not only do their research, but have to combine and intertwine it with others to produce common results, which are not a sum of the included data, but its multiplied product.

(Further co-authors: Mataj Doinec, Nina Zupančič, Manca Vinača, Igor Medarič, Matjaž Mori, Petra Basar)
TH5-10 Abstract 21

Geoarchaeology of Caspian settlements in eastern Maghreb: spatial organisation of outside areas

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Keywords: Caspian settlements, Geoarchaeology, the eastern Maghreb
Presentation Preference - Poster

The geoarchaeological research on Caspian settlements in the eastern Maghreb region is based on soil micromorphology. This research is important to understand the systems of settings of these nomadic and/or sedentary populations, by the characterization of the sedimentary records related to activities and their organisation. The micromorphological analysis reveals complex occupation dynamics, dominated by anthropogenic processes interacting with natural processes. Occupation surfaces show a great variability of sedimentary micro-facies according to 1) the nature of activities, 2) their spatial localisations, 3) micro-local climatic conditions and 4) the frequency degree of soils. In the outside areas, the occupation surfaces reflect differentiated spaces: areas near to the buildings or combustion structures, domestic wastes areas, passageway areas and multifunctional areas still characterized by several types of activities. Sedimentary archives contribute to increase our knowledge of the organisation and the functional modes of household spaces of Caspian settlements.

The aim of this communication, is to present new results about formation processes of occupation surfaces of outside areas, from several Caspian sites from Eastern Maghreb: Doukkane El Houftta (Biliana-Tunisia) Kel Elzath (Kairouan-Tunisia), El Mektia (Djelfa-Tunisia) and SHM-1 (Hergla-Tunisia).

TH5-10 Abstract 22

Inferring the Neolithic pits function from sedimentary record: the case of Le Pirou (France)

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Keywords: circular pits, Micromorphology, Neolithic
Presentation Preference - Poster

Middle Neolithic settlement on south of France are often characterised by negative features and by the lack of occupation surfaces, mainly due to post-depositional erosion. Pit clusters are usually dwelling evidence, such as in the site “Le Pirou”. About one hundred circular pits are arranged around an empty space, which its nature stays unknown. Some of these features are identified as human or animal burials but for the most of them, the primary function is under discussion: dumps because of the cultural remains diversity (potsherds, lithic, charcoal, animal bones), or storage structure due to the shape of the pits section. The pits’ infillings differ from massive to stratified deposits dealing with the question related to the function and to the rhythms of uses.

Few geoarchaeological researches using micromorphological analysis were carried out on the functional history of those pits. The research strategy applied, considers the pit as a system of activities.

In order to evaluate the cultural sedimentary record and to discriminate micromorphological indicators related to any activities (construction, use), and to post-functional processes, seven pits were sampling. Radiocarbon dating (4261 to 4174 cal BC), place these pits to Early Chassian Culture.

Geoarchaeological results indicate that the circular pits correspond to a constructed space, with activity surfaces regularly maintained and transformed by trampling. Correlation between stratigraphic and archaeological record allows us to propose a new interpretation on the functions of the pits (domestic/craft activity areas, cellar-storage) which will be presented and discussed in this paper.

TH5-10 Abstract 23

Micromorphology of combustions structures at Birnik and Thule sites of the Cape Espenberg site

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Keywords: Alaska archaeology, Combustion structures, Micromorphology
Presentation Preference - Poster

In Northwest Alaska, human societies have adapted their subsistence strategies to extreme conditions. At the coastal Cape Espenberg site, excellent conservation conditions have allowed the preservation of many cultural features (architecture, hearths, middens) within a series of advancing beach ridges. Remains of semi-euboreal houses and associated material culture indicate the sites relate to the Birnik and the Thule cultures. The houses associated with the Birnik 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 Birnik houses, revealing the presence of small domestic hearths inside and firepits outside. However, Thule culture houses only have external burned areas and firepits. Ceramic lamps appear to be the sole source of light and heat inside these houses.

The variability in the form, fit, and spatial organization of combustion structures raises questions regarding their usage, status and maintenance by people who occupied these houses. To further understand fire management in the arctic tundra, and the function and status of combustion structures, soil samples were collected from combustion structures (hearth, firepits, charcoal’s concentration and soil occupation, ...) for anthracological and micromorphological analysis. This sampling protocol provides the opportunity for a multivariate, comparative and diachronic analysis of combustion structures between one Birnik house and three Thule houses at Cape Espenberg. Our goal is to identify the diversity of fire-related activities in the excavated Birnik and Thule houses, whether domestic cooking, boiling water, heating, lighting, etc.) or specialized (ceramic firing, smoking and / or drying of foods, etc.). In this poster we present results of the soil micromorphological analysis and compare the areas sampled in terms of function and spatial organization in light of prior results of charcoal analyses.
TH5-11 Abstract 01

Digital media as an effective platform to archaeological data dissemination

Author - Eng. Betcio, Natalha, Universidade do Minho, Braga, Portugal (Presenting author)
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Keywords: 3D models, Information System, open-source software
Presentation Preference - Oral

The Unit of Archaeology of the University of Minho (UAM) start to be concerned about digital preserving of the archaeological data in the nineties, due to the large amount of records (both graphic and alphanumeric) mainly gathered during the rescue excavations carried out in the city of Braga since 1976. In order to facilitate the management and preservation after 1994 all the archaeological records start to be regularly digitized and stored in an Oracle DB. Later in 2000, as part of UAM's information system strategy, these data were migrated to a MySQL database. Simultaneously, to ensure a continuous update and management of the data, a web-based back office was developed using HTML and PHP. This technological independence enabled a constant growth of the back office, ensuring modularity, integration and customization facilities according to the user’s needs.

The designed Information System (2ArchIS) supports several modules, which range from the stratigraphy of any kind of excavations to the territory analysis and landscape characterization, connecting the alphanumeric data with images, vector graphics, cartographic documentation and bibliography. Furthermore, it can also integrate data resulting from the analysis and interpretation tasks.

The architecture of 2ArchIS also favours the data exchange with external applications. It is possible to export data to archED and ARCGIS enabling the automatic creation of a graph regarding the stratigraphic matrix and materials, that can be a valuable asset for the archaeological research.

TH5-11 Abstract 02

ArchSeries: an R package for transparent estimation of chronological frequency distributions

Author - Dr. Orton, David, University of York, York, United Kingdom (Presenting author)
Keywords: chronology, R, uncertainty
Presentation Preference - Oral

Archaeologists often wish to plot the chronological frequency distribution of a given entity – for example a feature category, a plant or animal species, or an artefact type – within a specific site or region. Since each archaeological occurrence is subject to chronological uncertainty, and since dating resolution varies widely, estimating a single distribution from numerous occurrences is a non-trivial task. This is particularly problematic where data are combined from multiple sites or interventions with a wide range of different chronological break points and sources of dating information - for example sites with a long history of excavation, or urban areas with complex stratigraphy and a high concentration of development-led archaeology. Researchers are often forced to fall back on a lowest-common-denominator approach, trading resolution for comparability by combining data into broad period categories.

This paper presents an R package for dealing with this situation without surrendering the original dating resolution. Designed originally for meta-analysis of zooarchaeological remains from numerous historical-period sites across London (used here as a case study), ArchSeries is built around functions for estimating frequency distributions using either (a) acoustic analysis or (b) simulation. Initially based upon uniform probability distributions within archaeologically defined limits, the simulation approach is currently being expanded to allow integration of archaeological chronologies with radiocarbon dates. The package also features a variety of functions for plotting the resulting frequency distributions along with their associated uncertainty. Finally, there is a tool for adjusting results according to the chronological distribution of research intensity.

With raw, context-level archaeological datasets increasingly being made publicly available, it is hoped that ArchSeries will facilitate transparent re-use and meta-analysis of frequency data while allowing researchers to retain the full available chronological resolution.

TH5-11 Abstract 03

Consumption patterns and morphology of cattle in a Late Neolithic settlement Polgár–Cószechalmon

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Keywords: Free software, Statistics, R, Zooarchaeology
Presentation Preference - Oral

In the last decades the zooarchaeological analysis of large sites shed lights on the limits of the interpretation of animal bones and resources. Nowadays the technologies and methods in the research change. The main question is, how can we interpreting these huge datasets? Which methods can help us to visualize this incredible sample size? And finally which software(s) can help us in this quest? For the evaluation of raw data from the Late Neolithic (5th millennium BC) settlement of Polgár–Cószechalmon is a perfect case study for the archaeological adaptation of one of the widely applied open-source statistical software: R.

Through the wildrange analysis of animal bones I focused on the meat consumption of the main domestic species at the site, the cattle. But the question is, how can we earn more information about these animals with using only a FOSS to the research? R offers numerous possibilities and ways for the data analysis and visualisation, but in this case study I would like to show the whole process from the birth of the research question until the answers with the help of R.

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.
TH5Science and multidisciplinarity in archaeology

of Boxgrove, UK, to demonstrate the new digital method of refitting, discusses how the system might be further developed and

method for directly linking episodes of human activity across the landscape.

person-hours to conduct a refit study whilst increasing reliability, the method could be applied to large, complex, palimpsest

situation through the development of a new digital method for refitting that draws on techniques from the field of optical metrology

be considered as complete, which can create uncertainty over the extent to which past human behaviour reconstructed through

analysis increases exponentially with assemblage size, while success rates decrease. Further, error rates in refitting remain

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Co-author(s) - Sparrow, Thomas, University of Bradford, Bradford, United Kingdom
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- Roberts, Mark, University College London, London, United Kingdom

Keywords: Automated refitting, Bngrove, Open source software

Presentation Preference - Oral

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,
technology and spatial organisation. However, it is a method constrained by a reliance on human experts and time, and is further

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REFITTING 1 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.

This paper presents a case study of part of the GTP17 assemblage (the Horse Butchery Site) from the Lower Palaeolithic site of Bngrove, UK, to demonstrate the new digital method of refitting, discusses how the system might be further developed and explores its potential for improving understanding of past societies.

Acknowledgements: This research is part of the Fragmented Heritage project funded by the Arts and Humanities Research Council (AH/L00688X/7).

TH5-11 Abstract 05

Putting the pieces back together: automated refitting using open source software

TH5-12 Abstract 01

Metal Detecting in Brandenburg

Keywords: Metal detector, site management, volunteer training program

Presentation Preference - Oral

Metal detecting survey in archaeology

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

Faculty of Philology, Room A7

Author - Mark, Jan, Institute of Archaeology of the CAS, Prague, Czech Republic (Presenting author)

Co-author(s) - Frank Danielisova, Albetta, Institute of Archaeology of the CAS, Prague, Czech Republic
- Hornak, Milan, VI MAGNA s.r.o., Utrity, Slovakia

Keywords: Metal detectors, methodology, survey

Presentation Preference - Regular session

While a number of archaeologists perceive metal detectors as a standard tool of archaeological research, a certain level of distrust of this technology still persists. This rather unsatisfactory state of affairs is also reflected in majority of methodological guides (guides to best practice) where usually the topic of metal detectors is mentioned only marginally or just the legal aspect of their use is emphasized. Organisers of this session are convinced that detector prospecting potential has not been fully realized yet. Thus, we would like to map the currently applied methodological approaches defining this technology. We encourage participants to present papers focusing especially on metal detecting applied under different conditions: cultivated areas, forests, underwater archaeology, research on specific activities such as battlefields, routes, complex surveys of important archaeological sites as well as comparisons of their informative value with other methods (non-destructive as well as destructive) of archaeological research. Last but not least, the topic of formation processes affecting metal artefacts especially in arable areas is equally important.

TH5-12 Abstract 04

Can we have that on a map? Open Source options for the dissemination of archaeological spatial data

Author - Dr. Evans, Tim, Archaeology Data Service, York, United Kingdom (Presenting author)

Keywords: Open Source, Web mapping

Presentation Preference - Oral

Perhaps more than any other data type, geospatial information appeals to the archaeologist. The ability to plot a dataset in its geographical and chronological context offers a myriad of possibilities for interpretation, understanding and presentation. For over twenty years the Archaeology Data Service (ADS) has curated and disseminated such datasets, the latter through an increased use of tools for Web-based mapping. However, the practice of such dissemination has not always run smoothly, early work with proprietary software and middleware such as ArcIMS, ArcGIS Server and ArcSDE have proved problematic and on occasion, unsustainable. Thus in more recent years the ADS have moved towards utilising the wide range of Open Source tools, 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.

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TH5-11 Abstract 05

Putting the pieces back together: automated refitting using open source software

Author - Dr. Davis, Robert, University of Bradford, Bradford, United Kingdom

Co-author(s) - Evans, Adrian, University of Bradford, Bradford, United Kingdom (Presenting author)
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- Parfitt, Simon, University College London, London, United Kingdom
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Presentation Preference - Oral

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Acknowledgements: This research is part of the Fragmented Heritage project funded by the Arts and Humanities Research Council (AH/L00688X/7).
TH5-12 Abstract 02
Methodology and perspectives. Use of metal detectors in the Little Poland region

Author: MA Bulas, Jan, Jagiellonian University, Kraków, Poland (Presenting author)

Keywords: Iron Age, Little Poland Upland, metal detector

Presentation Preference - Oral

In Poland, as in most European countries there is an ongoing debate about the risks associated with the use of metal detectors by treasure hunters while illegal surveys. This topic largely overshadowed subject of methodological use of metal detectors during archaeological excavations, and during field-walking surveys. The discussion within the scientific community, which was also held in Poland, mainly in the 90s and in the first decade of the twenty-first century, above all was limited to a debate whether the use of metal detectors in general should be allowed during scientific research or not. The subject of methodological application of this tool was virtually ignored.

The aim of the paper is to present a reflection on the advantages associated with the use of metal detectors during archaeological excavations and field surveys in characteristic hilly terrain of the Little Poland Upland. This reflection will be based on the experience of the last decade of research in the area, primarily on the various Iron Age sites. The presentation will address the issue of the relationship between topography, geological and archaeostratigraphic 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 most to the Iron Age.

TH5-12 Abstract 03
Strategies of Detecting Research in Mountain Areas of Slovakia

Author: Dr. Hornak, Milan, VIA MAGNA s.r.o., Vrutky, Slovakia (Presenting author)

Co-author(s): Dr. Mgr. Kvietok, Martin, Central Slovakia Museum Banska Bystrica, Banska Bystrica, Slovakia

Keywords: Detecting, metal detector, mountain areas

Presentation Preference - Oral

The hillfort is a typical settlement unit for mountain areas of Slovakia for a long period of time from the late Bronze Age until developed Middle Ages (12th - 13th century). A typical aspect of hillfort is in addition to building of fortification also treatment of landscape of its close economic background into a system of terraces, on which economic, agricultural and settlement activity concentrated.

We currently know about several hundreds of prehistoric or medieval hillforts with various settlement intensity in this landscape.

Other objects typical for mountain areas are various types of communications from service roads up to roads of trans-regional nature. There is a vast number of archaeological findings situated along such roads, which enable us to date the period of road usage as well as nature of goods transported on such roads or types of travellers using them.

Last but not least, mountain areas of Slovakia are rich in numerous relics of old mining activity, ranging from simple exploratory shafts through large extraction and processing areas up to abandoned mining villages. Material obtained from them enables us to learn about contents of material culture of mining communities from the oldest time to modern period.

Intensive and regulared mass detecting has been occurring during the last quarter of century not only in Slovakia. It affected especially hillforts and their immediate background. Although mass detecting has brought irrecoverable damage to learning about the national cultural heritage (absence of information about the finding site or about particular circumstances of the finding), it has also brought vast amount of information about the material culture of prehistoric and historic communities living in this area, even though such information has various informative value. Mass detecting has also brought discoveries of numerous new localities, which are exposed to biggest risks without the immediate response by archaeologists.

Several projects during the last years were focused on the large scale prospectives of the complex settlements that are considered as central (the oppida, early medieval strongholds). Because such sites are notorious among treasure hunters a thorough metal detector survey, besides traditional surface prospectations and geophysics, was conducted on the selected areas within and outside of the sites’ fortified bounds. Apart from the obvious research interest the principal aim of the survey was to remove (as much as possible) of the metal objects from the topsoil. Majority of these settlements were turned out to fields during the Middle Ages, most of these remain so until today. The basic idea behind the “archaeology of the plough-soil” is that upper layer of 20-30 cm contains dislocated finds removed from their original contexts in the cultural layers or upper parts of the sunken features.

However, this dislocation is not as substantial to prevent us from detecting patterns related to the original spatial structure. In order to conduct a survey as thorough as possible the selected areas were ploughed in order to investigate the contents of the topsoil in detail. In order to get the maximum results a repeated survey is needed after every ploughing (twice a year). Our case studies will hopefully present that despite this method being time and energy consuming it is however rewarding in a fact that the finds from the upper layer can be thus safeguarded for proper archaeological research.

TH5-12 Abstract 04
The hilltop settlement 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, Timoja, Narodni muzej Slovenije, Ljubljana, Slovenia

Keywords: archaeological research, Gradišče above Bašelj, Slovenia, metal detecting survey

Presentation Preference - Oral

The hilltop settlement Gradišče, a Late Antique and Early Medieval hilltop settlement, rises above the village of Bašelj, north of Kranj, Slovenia. The first archaeological finds discovered at the top of the sharply peaked hill of Gradišče, were unearthed in 1906, during the construction of a hunting lodge. Thirty years later, landscape maintenance works around the lodge revealed more finds. The finds were sufficiently interesting to prompt archaeological excavations, which were conducted in 1939 under the direction of the National Museum in Ljubljana. In the following decades interest in the site almost died out. However, around 1990, new finds started to emerge, acquired by treasure hunters with metal detectors. In 1992, an archaeological team conducted a topographical survey with a metal detector. The site was revealed to be highly endangered due to the fact that the artefacts were very close to the surface. In the following years, rumours of new illegal detector finds prompted the decision to complement the topographical survey of the site and, in 1998, a team of archaeologists from the National Museum of Slovenia conducted a revision excavation, which confirmed existence of the settlement from the 5th–6th century and uncovered another layer with numerous iron objects and ceramic fragments, from the period between the end of the 8th century and the mid 10th century.

In the recent years, a lidar scanning and a geophysical research of the site and its surroundings were carried out, confirming numerous built structures inside the settlement. One of these, a tower built outside the defence wall was excavated in 2015. The new discoveries of the architectural remains, therefore, offer a great opportunity to compare the settlement’s structure with a distribution of small metal finds, recorded during the previous topographical surveys. Moreover, the presentation also gives a short overview on the national legislation regarding the search for archaeological remains and use of technical means for this purpose.

TH5-12 Abstract 05
Archaeology of the plough-soils

Author: Mark, Jan, Institute of Archaeology of the CAS, Prague, v. v. i., Prague, Czech Republic (Presenting author)

Co-author(s): Frank Danielisova, Alzbeta, Institute of Archaeology of the CAS, Prague, v. v. i., Prague, Czech Republic

Keywords: central places, metal detector prospection, plough-soils

Presentation Preference - Oral

Several projects during the last years were focused on the large scale prospectives of the complex settlements that are considered as central (the oppida, early medieval strongholds). Because such sites are notorious among treasure hunters a thorough metal detector survey, besides traditional surface prospectations and geophysics, was conducted on the selected areas within and outside of the sites’ fortified bounds. Apart from the obvious research interest the principal aim of the survey was to remove (as much as possible) of the metal objects from the topsoil. Majority of these settlements were turned out to fields during the Middle Ages, most of these remain so until today. The basic idea behind the “archaeology of the plough-soil” is that upper layer of 20-30 cm contains dislocated finds removed from their original contexts in the cultural layers or upper parts of the sunken features.

However, this dislocation is not as substantial to prevent us from detecting patterns related to the original spatial structure. In order to conduct a survey as thorough as possible the selected areas were ploughed in order to investigate the contents of the topsoil in detail. In order to get the maximum results a repeated survey is needed after every ploughing (twice a year). Our case studies will hopefully present that despite this method being time and energy consuming it is however rewarding in a fact that the finds from the upper layer can be thus safeguarded for proper archaeological research.
TH5-13 Abstract 01

Environmental conditions and Mesolithic-early Neolithic sites in the basin of Vozhe Lake (Russia)

Author - Dr. Kosorukova, Natalia, Cheboksary State University, Cheboksary, Vologda region, Russian Federation
Co-author(s) - Kulkova, Marianna, Herzen State University, St. Petersburg, Russian Federation (Presenting author)
Keywords: Mesolithic, Early Neolithic, pit-bog settlements, Vozhe Lake
Presentation Preference - Oral

The pit-bog sites are located in the basin of Vozhe Lake in the Vologda region of Russia. The Pogostelne 15 site is dated to middle Mesolithic period, but the Karavakhkra 4 site belongs to the Early Neolithic period. The archaeological finds were found under layers of peat and gyttja and the alluvial sand and clay deposits. The numerous finds from bones, flint, shale, wood, ceramics, animal bones and remains of wood fishing constructions were excavated. The application of geochemical, pollen and radiocarbon methods gave the possibility to reconstruct the palaeoenvironment and to clarify the chronology of sites. The investigations of cultural layer successions on these sites allow us to trace not only changes in the material culture of the ancient people, but also the environmental development during the period from the beginning of the eight (Boreal period) to the middle of the sixth millennium BC (Atlantic Period), and the way ancient people interacted with the natural environment. The human groups occupied this area around 7,800 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 Karavakhkra 4 site around 6,200 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 birch prevalence on this place could be an indicator of anthropogenic factor in this context. The next stage of anthropogenic activity was in the middle of Atlantic period. The wood artifacts were dated around 5043-4885 cal BC. The amount of artifacts in this cultural layer is not too much as in a layer of beginning of Atlantic period. It could be explained by the decreasing of water level, lake 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.
The influence of past climate change on hunter-fisher-gatherer societies is a highly debated topic during recent years. The increasing interest in human-environment interactions has resulted in development of more accurate methods and techniques for palaeoenvironmental reconstruction. Thus, molluscs recovered from archaeological shell middens sites can provide information on past climatic and environmental conditions, as well as human subsistence practices. Seawater temperatures (ST) can be reconstructed using geochemical techniques such as the analysis of stable oxygen isotope ratios on marine mollusc shells. In this paper we aim to reconstruct the evolution of ST in northern Iberia (Spain) from ~50 to 7 ka cal BP using oxygen isotope ratios obtained from the limpet Patella vulgata (Linnaeus, 1758). Modern and archaeological specimens from seven sites were analysed, producing a long-term record of environmental changes. Results suggest that important changes in ST took place during the time period investigated, with significantly higher seawater temperatures during the Holocene compared to the Late Pleistocene.Radiocarbon dates also show a correlation between P. vulgata estimated ST and data from the Greenland NGRIP ice core and from deep-sea sediment core MD95-2042 (located off western Iberia), suggesting that ST in northern Iberia followed a global pattern.

**TH5-13 Abstract 05**

**Mammalian response to climatic instability over the Pleistocene-Holocene boundary in Britain**

**Author:** Mair, Melissa, Natural History Museum London, London, United Kingdom (Presenting author)

**Co-author(s):** Baines, Ian, Natural History Museum London, London, United Kingdom

**Co-author(s):** Maclood, Norman, Natural History Museum London, London, United Kingdom

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**Keywords:** 3D Geometric Morphometrics, Ancient DNA, Palaeoclimate

**Presentation Preference:** Oral

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 in the British Isles. Over this period also associated with large-scale changes in human populations, culture and technology. This study applies a novel synthesis of ancient DNA and 3D geometric morphometrics to sub-fossil material recovered from the British zoo-archaeological record in order to investigate the tempo, scale and mode of mammalian response to this rapidly changing climate.

Britain is ideally placed to examine the question of climate-driven faunal turnover on account of its sensitivity to climate change driven by its proximity to the North Atlantic. Its exceptionally rich fossil assemblages and its geographical position, formerly connected by a landbridge to the European mainland, regional level population instability and eco-morphological change driven by its proximity to the North Atlantic, its exceptionally rich fossil assemblages and its geographical position, formerly connected by a landbridge to the European mainland. Regional level population instability and eco-morphological change driven by its proximity to the North Atlantic, its exceptionally rich fossil assemblages and its geographical position, formerly connected by a landbridge to the European mainland.

**TH5-13 Abstract 06**

**Isotopic evidence of environmental change during the Palaeolithic in the Cantabrian Region, N. Spain**

**Author:** Dr. Jones, Jennifer Rose, Universidad de Cantabria, Santander, Spain (Presenting author)

**Co-author(s):** Marin Amorino, A.B., University of Cantabria, Santander, Spain

**Co-author(s):** Richards, M.P., University of British Columbia, Vancouver, Canada

**Keywords:** Bioarchaeology, Palaeoenvironment, Palaeolithic

**Presentation Preference:** Oral

The Cantabrian northern Spain was an archaeologically important region throughout the Middle and Upper Palaeolithic, and was home to some of the last surviving Neanderthals in Europe, and during the Last Glacial Maximum the region acted as a refugium for plants, animals and humans. Changes in the environment are thought to have been driving factors behind the extinction of the Neanderthals, the rise of Anatomically Modern Humans (AMHs), and later the development of the rich cave art assemblages. Carbon and nitrogen stable isotope analysis of hunting animal bone collagen from Palaeolithic levels of archaeological sites can be used to understand past environments at this time. Changes in the environment including factors such as temperature, aridity produce different isotopic signatures within plants, and the animals that consume them, and analysis of these specimens on a large scale. This research uses large scale isotopic analysis of animal bones, before making comparisons to existing zooarchaeological assemblages, to characterise how the environment changed, and human responses to these environmental changes throughout the Middle and Upper Palaeolithic in this archaeologically important region, at this crucial time in human evolution.

**TH5-13 Abstract 07**

**Changing mammal communities influence Neanderthal and Anatomically Modern Human food resources**

**Author:** Knul, Monika, Bournemouth University, Poole, United Kingdom (Presenting author)

**Co-author(s):** Stewart, John, Bournemouth University, Poole, United Kingdom

**Co-author(s):** Gillingham, Philp, Bournemouth University, Poole, United Kingdom

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**Keywords:** Faunal palaeoecology, Food resources, Neanderthal

**Presentation Preference:** Oral

Neanderthal extinction has been approached from many perspectives in recent years, one of which is the difference in diet between Neanderthals and Anatomically Modern Humans (AMH). Difference in diet between the species may have influenced their ability to respond to climate change, i.e. the ability of AMH to diversify food resources has been suggested to have been advantageous and responsible for increases in population density. Both Neanderthal and AMH relied heavily on meat resources as proven by both zooarchaeological studies and stable isotope studies.

It has been claimed that Neanderthals exploited species for food that are often associated with warmer, more forested environments. Meanwhile, AMH apparently exploited a more diverse array of species, however, most of these are associated with more open, cooler habitats. These observed differences in resource exploitation by the different hominins have undergone little statistical testing; thus the aim of this paper is to test if these observations remain probable after statistical testing and interpret the data in more detail, as was previously impossible.

We conducted statistical analyses on a database that consists of radiocarbon dates from over 400 archaeological sites and associated faunal remains, with a geographic range of Europe limited to the East by the Ural Kings 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 herbivore, omnivore and the carnivores guilds are tested separately and together. The temporal component of the PCA is used to see if there is any observable change over time in the environment and faunal composition. The resulting data from the analysis is used to test 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.

**TH5-13 Abstract 08**

**Examining the potential of oxygen isotopes in human skeletal remains: a multi-tissue approach**

**Author:** Dr. Alexander, Michelle, University of York, York, United Kingdom (Presenting author)

**Co-author(s):** Britton, K., The University of Aberdeen, Aberdeen, United Kingdom

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**Keywords:** bone, oxygen isotopes, palaeoecology

**Presentation Preference:** Oral

The oxygen isotope composition of precipitation is largely a function of local temperature, and therefore varies geographically. The oxygen isotope analysis of archaeological skeletal material has the potential to investigate past geographical origins and climatic conditions. In archaeology, the oxygen isotope analysis human tooth enamel (often paired
with strontium isotope analysis) is commonly used to infer childhood geographical origin. However, given that dental tissues form incrementally, and only capture isotopic inputs from a given period (e.g. during their formation), their analysis only offers short-term records that (depending on sampling strategy) can encapsulate seasonal biases. The oxygen isotope analysis of other skeletal tissues and fractions, such as bone collagen or bone phosphate, offers the potential to provide evidence of longer-term mean oxygen isotope inputs and infer the composition of drinking water in later life. Not only could this be useful as an indicator of later life mobility, but also as a palaeoecological proxy or even as an indicator of certain dietary practices (given that, in some cases, culinary preparation techniques can significantly alter the composition of dietary water). Prior to routine archaeological application, however, the investigation of inter-tissue, methodological and taphonomic (diagenetic) factors affecting oxygen isotopes in skeletal remains is necessary.

Here, we present oxygen isotope data (δ18O) generated from multiple tissues derived from the same archaeological individuals from Medieval and Post-Medieval British sites with the aim of exploring inter-tissue/inter-fraction variation as well as geographical and temporal variability. Individuals were selected from different geographical locations (Yorkshire, London) representing both rural and urban populations. Oxygen isotope values were determined in bone and tooth phosphate (δ18Op), tooth carbonate (δ18Oc), and also in bone collagen (δ18Ocoll). Isotope analyses were combined with FTIR in order to provide additional insights into sample integrity. The implications of this research for the planning of future archaeological isotope investigations and sampling strategies will be explored.

TH5-13 Abstract 09

Stable Isotope Markers of Herd Management in Prehistoric Croatia

Author - Zavodny, Emily, The Pennsylvania State University, University Park, United States of America (Presenting author)
Co-author(s) - Culleton, Brendan J, The Pennsylvania State University, University Park, United States of America
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Co-author(s) - Baen, Jacqueline, Arheološki Muzej u Zagrebu, Zagreb, Croatia
Keywords: animal management, Croatia, stable isotopes
Presentation Preference - Oral

We use stable carbon, nitrogen, and sulphur isotope values as proxies of diet and local environment to highlight differences in herding and management practices between domesticated species in prehistoric Croatia. Bone samples from known domesticated (sheep, goat, cow, and pig) and wild species (deer and wild boar) are taken from sites from two 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 archaeological management, development, spread, and ultimate divergence of different herding strategies.

TH5-13 Abstract 10

Changing cultures, changing environments

Author - Pitt, Jacqueline, Bournemouth University, Bournemouth, United Kingdom (Presenting author)
Keywords: Human-animal interactions, Palaeoecology, Zooarchaeology
Presentation Preference - Oral

Climate and environment are critical factors for the survival of every living species. Animals and plants are not only conditioned by, but also change their environment. The interaction between different species and their environments changes over time and as such can be very informative, but identifying this complex relationship in the archaeological record is challenging. The domestic chicken presents an interesting case study. Introduced into Europe during the Iron Age as a non-native species, its novel presence necessarily altered its ecosystem, both in terms of inter-species relationships and on account of humans altering the local environment to accommodate this newly domesticated exotic bird. Application of ecological community models to archaeological faunal data forms the basis of a macro-scale approach to explore the complex network of interactions that determined past ecosystems. Europe-wide comparison of faunal and floral ecological site at level site from period prior to the introduction of the chicken up until the end of the Roman Empire enables us to better understand how changes in climate and attitudes over time have been influenced by, and shaped, the environment within which these communities exist.
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)" (Addzhel, "the settlement (Betlna))" in the Tula State Lev Tolстой Pedagogical University (reference number 2014/88 Ministry of Education of Russia, research № 1799).

TH5-13 Abstract 13

Geomorphology and early Neolithic migration routes into the Transylvanian Depression

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Keywords: Carpathians, Early Neolithic, migration routes

Presentation Preference - Poster

In this paper we discuss the geomorphological conditioning of the migration routes of the early Neolithic communities into the Transylvanian Depression (Carpathian Mts., East Central Europe), as reflected by the spatial and temporal distribution of the Starčev – 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 routes across the Carpathian Mts. was eastward from the Pannonian Basin, along the Mureş River. During Starčev – Criş I and II, the communities were present only in the western part of the Transylvanian Depression, at the edge of the Apuseni Mountains. They have split along the main rivers and some small tributaries, and moved to the north, along Someşul Mic River and its right side tributaries. Starting with Starčev – Criş III, the number of the early Neolithic communities has increased, mainly along Mureş River and its main tributaries (Târnava Mică, Târnava Mare, Argeş), associated with a slow eastward movement. A secondary eastward route was along the low alluvial plain (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 Someşul Mare – Someş Valleys seems to had been avoided by the early Neolithic communities? (2) (2) Were the Carpathian peoples south to north to reach this route, or have spread eastwards, branching off route above.

Based on these observations, the authors discuss the natural condition in some specific case studies, in order to offer answers to some key questions: (1) Why Someşul Mare – Someş Valleys seems to had been avoided by the early Neolithic communities? (2) (2) Were the Carpathian peoples south to north to reach this route, or have spread eastwards, branching off route above.

The authors acknowledge financial support from projects PN-II-RU-PD-2012-3-0547, PN-II-RU-TE-2014-4-1993, PN-II-ID-PCE-2011-3-0057, financed by UEFISCDI Romania.

TH5-13 Abstract 14

North Atlantic and Labrador seasonal climate: isotopic evidence from micromilled bivalves and wood

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Keywords: micromilling, seasonal climate, tree-rings and bivalves

Presentation Preference - Poster

High-resolution records are exceptionally important for reconstruction of past environmental and climatic conditions. Microfossil are particularly important devices because they obtain discrete samples at high temporal resolutions, thus allowing for reconstructions of intra-annual environmental and climatic variability. Seasonality of temperature and precipitation are one of the most significant parameters of climate that directly influences terrestrial and marine environments. Here, we present sub-seasonal climate data obtained using our custom-designed robotic micromilling device from bivalve shells retrieved from a North Atlantic core near Iceland and a wood disc from a white spruce tree collected near the tree line in coastal Labrador.

We provide the first whole Holocene temperature record of seasonality for the North Atlantic, a climatically important region with significant transregional effects. Thirty five well-preserved aragonitic bivalves were extracted from a marine piston core from NW Iceland and sequentially micromilled concordant with growth dating. Carbonate aliquots were subsequently analysed for δ18O and δ13C values to obtain snapshots of ambient seawater temperatures at a sub-monthly resolution. Our data suggest that the
**HUMAN LAND USE AND SUBSISTENCE HISTORY OVER THE HOLOCENE**

**TH5-14 Abstract 01**

**Towards a global history of human land use over the Holocene**

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**Keywords**: Agriculture, Holocene, Land use

**Presentation Preference**: Oral

This paper outlines the aims of the PAGES-funded LandCover6k project (http://www.pages-igbp.org/wiki/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 use and land-cover change to climate modelers. The LandCover6k working group infers land-use data from fossil pollen records (lake sediments and peat deposits), and from archaeological and anthropological records (including written sources and material remains). We focus on regions of the world where humans have had a significant impact on land cover during the last 6000 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-use change on climate, the best known is biogeochmical effects, in particular the influence on the exchange of CO2 between the land surface and the atmosphere. The biogeophysical effects are less well understood.

We will review the current state of archaeological evidence for human land use in South Asia in the middle to late Holocene. The review forms part of a larger effort of the PAGES-supported LandCover and LandUse6k project (http://landuse.ucsd.edu) to reconstruct global land use and land cover datasets for the purpose of improving models of anthropogenic land cover change being used by climate scientists. Here we will present archaeological and palaeoecological data from different regions of modern day India, Pakistan, and Bangladesh in an effort to identify significant changes in agricultural and pastoral land use. We will present existing data and foraging land use and anthropogenic land cover changes between ca. 6000 BP and 3000 BP. As we will detail, during this period there was an intensification and expansion of agricultural and pastoral land use across many regions of South Asia that significantly affected land cover and other environmental conditions.

**TH5-14 Abstract 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.ucsd.edu) to reconstruct global land use and land cover datasets for the purpose of improving models of anthropogenic land cover change being used by climate scientists. Here we will present archaeological and palaeoecological data from different regions of modern day India, Pakistan, and Bangladesh in an effort to identify significant changes in agricultural and pastoral land use and subsistence patterns over the course of the Holocene. Using seriations of ceramics and habitation sites and absolute dating results, we chart fluctuations over time in human population densities and the exploitation of a range of resources. Marked changes in land use 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 hunting-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 differences between how construction of monumental architecture may have played across the changing selective environment over the last 10,000 years in the study area.

**TH5-14 Abstract 03**

**Long-term patterns of Human Land Use in the Temperate Woodlands of Northeastern Mississippi, U.S.A.**

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**Keywords**: Climate Change, Land Use, Southeastern U.S.A.

**Presentation Preference**: Oral

Decades of archaeological survey and excavation in the upper Tombigbee River drainage of Mississippi, southeastern U.S.A., have produced a large body of data related to demographic, settlement, and subsistence patterns over the course of the Holocene. Using seriations of ceramics and habitation sites and absolute dating results, we chart fluctuations over time in human population densities and the exploitation of a range of resources. Marked changes in land use 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 hunting-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 differences between how construction of monumental architecture may have played across the changing selective environment over the last 10,000 years in the study area.

**TH5-14 Abstract 04**

**North American Land Use from 6K Onward: A First Look**

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**Keywords**: collaborative research, land use, North America

**Presentation Preference**: Oral

Our major focus is on the reconstruction of land-use history; the goal is to ensure that interpretations are archaeologically robust, well-informed by current understandings of human land use history and useful to the archaeological community, as well as the climate modeling community. We present initial results from our land categorization work and consider some of the challenges and opportunities associated with these efforts. These include some of the assumptions around the nature of hunter-gatherer human impacts, early farming and ongoing land use activities and how these differ in various parts of the world. Sometimes, models that have been developed for regions such as Europe form the basis for other areas, that reflect more about the role of Europe in the world, than the reality of human impacts, agricultural and pastoral activities in other continents. We hope the project will facilitate more realistic understanding of the variation of human land use across space and time and offer the opportunity for the archaeological community to contribute towards globally important issues.

**References:**


Integrating syntheses of land use by archaeologists, historians, and historical geographers, we present a preliminary meta-
analyses of land use, including different modes of land use - foraging, agriculture, pastoralism, and urbanism - by indigenous and European colonizers of 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 comodification (including forms of pastoralism) and later agriculture, with urban centers appearing by 1000 AD in various parts of North America. We conclude with the historic era, 1850 CE, by which time agriculture and other land use practices were industrialized. Land use characterizations such as these are the foundation for the construction of higher fidelity models of recent climate change. This effort contributes to LandUse 6k, a global collaboration to document land use around the world and through time, in order to achieve a better understanding of anthropogenic involvement with climate change. We seek input from scholars of European archaeology on method and implications.

THS-14 Abstract 05
Intensity of human impact inferred from pollen I 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 PALKY database (http://botany.natur.cuni.cz/palky) 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 (80 km radius) was obtained by combining the CORINE Land Cover map with forest inventories, agricultural statistics and habitat mapping data. Among the vegetation estimates of different taxa, Cerealia, Plantago lanceolata and Poaceae were considered as indicators of crop cultivation, pastoral management and deforestation in general.

Archaeological data was taken from the Archaeological database of Bohemia. The intensity of human impact was inferred by analyzing the economic model of a prehistoric community and its consequences to the surrounding environment. Special attention was paid to estimate the amount of cereals that could be grown in different prehistoric periods. Pollen-based and archaeological-based cereal estimates show very similar pattern when compared relatively. However, absolute area of pollen-based cereal estimates of different taxa, Cerealia, Plantago lanceolata and Poaceae were considered as indicators of crop cultivation, pastoral management and deforestation in general.

Consequently, the presentation will also be an attempt at explaining and understanding the causes of this variability.

THS-14 Abstract 06
Animal subsistence in the Eneolithic period from South-East Romania

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Keywords: Eneolithic, Romania, Zoarchaeology
Presentation Preference - Oral

The presence of the first tell settlements in the southeastern Romania and their development between 4700-3500 BC allowed some observation about animal paleoeconomy evolution over several cultural sequences (Boian, Gumelnita, Sâlciu and Cernavoda I). Thus, the existence of numerous tell settlements with a complex stratigraphic and chrono-cultural sequences attested (e.g. Horoşo, Vadimca, Cascaioara, Văcăreni, Dregătoni Oii, Gumelnita) gave us the opportunity to record some changes in the livestock and hunting activities. Regarding the livestock activity, cattle and sheep/goat which prevail, shows highly significant variability by region. The slaughtering curve study for the cattle are grown for milk while sheep/goat is bred for meat. In this manner, between the two types of animals we remarked a complementarity in animals’ products. Our study also captures the pig growing importance from 5% to 25% since the beginning of the first tells settlement, so this is closely linked to the sedentary lifestyle of the Eneolithic populations. Additionally, archaeological data and pollen-based cereal estimates of different taxa, Cerealia, Plantago lanceolata and Poaceae were considered as indicators of crop cultivation, pastoral management and deforestation in general.

Thus, the connections with the environment are strengthened, a vital thing for an efficient exploitation of local potential.

THS-14 Abstract 07
Middle Neolithic transformations of food economy in the upper Vistula basin (SE Poland)

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Keywords: food economy, Funnel Beaker Culture, South-Eastern Poland
Presentation Preference - Oral

In the first half of the fourth millennium BC, in the upper Vistula basin, from the perspective of the past material culture, the last units of the Lengyel-Polgár-Perenice culture (indicated to the so-called Danubian Neolithic) disappeared. In that period a new archaeological phenomenon appeared and was gradually spreading; it was the south-eastern group of the Funnel Beaker culture (SE TRB). In central-European prehistory, significant changes in systems of Neolithic food economy and settlement have been associated with this culture. In the most complete and systematic way they were modelled by J. Kruk, in the 1970s and 1980s. These transformations would consist of overcoming of ecological and topographical constraints (barriers), characteristic of Danubian Neolithic, and including into the Neolithic occurrence virtually all landscapes of a given territory ("second stage of Neolithisation"), i.e. western part of Lower Poland in our case. These processes would involve a much more widespread use of fire as a basic agrotechnological tool and the formation of a shifting, slash-and-burn mode of cultivation. The long-term functioning of such a system would lead to the appearance of large, deforested areas (grasslands and parklands) of anthropogenic origin, in the second half of the fourth millennium BC. The main aim of the presentation will be to evaluate that model, with the use of new archaeological, paleoenvironmental and palaeoenvironmental data, obtained i.a. in the settlement of the TRB at Mozgawa (the Pińczów district). In the view of these data, it seems that the aforesaid model can be applied only to certain areas of the upper Vistula basin, mainly losses highland. Economy and settlement of Neolithic groups living in the fourth millennium BC in other ecological and environmental systems, not associated with broad-spared, extensive human interference in the environment.

Consequently, the presentation will also be an attempt at explaining and understanding the causes of this variability.
In connection with two rescue excavation projects in Southeastern Norway, the Vestfoldbaneprosjektet and the project E18-Rugt –- Kiel University was established, to extract and analyze a core from Lake Skogstjern, Bamble, Telemark. The aim was to supplement archaeological excavation results, mainly traces of coastal settlement dating to the Mesolithic and Neolithic periods, with knowledge on vegetation history. From the comparison of archaeological and archaeobotanical material questions of human impact for more than 10,500 years. Lake Skogstjern has, due to its rather small size, an extra-local signature. 

The pollenanalytical data shows that first evidence of human activity emerges already during the Mesolithic, reflecting small-scale openings of the forests by the assistance of fire. First traces of agriculture occur during the Early Neolithic. Those are, however, signs of rather small scale ‘cereal cultivation’ and of only limited animal husbandry. During the following periods, there are again and again traces of agriculture, nevertheless, human impact remains on a more or less low-level and does not generate any significant palaeoenvironmental changes. The palaeoecological record evidences some intensification in animal husbandry only during the second half of the Bronze Age, involving slightly higher degree in landscape openness and the utilization of wet meadows for grazing purposes. Crop cultivation, however, plays a minor role even up to the pre-Roman Iron Age.

According to the pollenanalytical data the establishment of a full farming community is taking place exclusively in the centuries AD, characterized by a general expansion and intensification of the land-use as verified by extensive forest clearances and fires, crop cultivation on permanent fields and the presence of open pastures as well as associated therewith advanced soil degradation and increased erosion rates.

These results both support as well as challenge the archaeological discussion on the relationship of humans and surroundings and from a mobile to a sedentary way of life.

**TH5-14 Abstract 09**

A varve preservation record of climate change and human impact from Lake Tieter See (NE Germany)

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**Keywords:** human impact, lake sediment, varve chronology

**Presentation Preference:** Oral

Annually laminated (varved) lake sediments represent unique archives in continental areas providing both, precise chronologies and seasonally resolving proxy data. Lake Tieter See in NE Germany provides such an archive for an integrated multi-proxy study based on high-resolution sediment analyses. Lake Tieter See was formed during the last glaciation and is part of the Kockschn See chain, a subglacial channel system that crosses the Pomeranian terminal moraine. Coring campaigns at the deepest part of the lake (82 m water depth) yields 7 sediment profiles. From these individual profiles a 7.2 m long continuous composite profile has been compiled covering the past ~8000 years. The chronology of the core sequence is based on a multiple dating approach including varve counting, radiocarbon dating of terrestrial plant remains and tephrochronology. We present a combined approach of microcline analyses using 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 characterizing human settlement phases.

The sediment record of Lake Tieter See exhibits distinct decadal- to centennial-scale alternations between well- and non-varved intervals with an increasing trend of non-varved periods since ~4000 cal yr BP. These non-varved episodes generally coincide with phases of increased vegetation openness as reconstructed from pollen data. Predominantly varved intervals before AD 1924 are characterized by low productivity and concur with closed forests in the lake catchment. In contrast, well-preserved varves after AD 1924 are linked to increased lake productivity likely due to anthropogenic eutrophication. In this study we discuss the influence of climate change and human activity on varve preservation. We propose that the observed long-term increase of non-varved intervals is linked to gradual climate change in the Late Holocene triggered by insolation changes, whereas superimposed centennial- and decadal variability of varve preserves 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 Tiefer See.

This study is a contribution to the Virtual Institute of Integrated Climate and Landscape Evolution Analysis – ICLEA – of the Helmholtz Association (grant number VH-VI-415) and uses infrastructure of the Terrestrial Environmental Observatory (TERENO) of the Helmholtz Association.

**TH5-14 Abstract 10**

Early agriculture and landscape evolution in the Mesolithic and Pre-Roman Iron Age in NW Iberia during the Middle and Late Holocene

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**Keywords:** Agriculture, Neolithic, Sustainability

**Presentation Preference:** Oral

The Iberian Peninsula is a small, relatively isolated archipelago of only 316 sq. km. – have been exploited by successive agricultural civilizations since 5000 cal BC. At around 3000 cal BC there was a cultural fluorescence that saw the construction of elaborate monumental hypogea, distinctive forms of figurative art, and unparalleled megalithic architecture. Through interdisciplinary work in paleoecology and the archaeological sciences, the ERC-funded FRAGSUB project is currently investigating how small island communities managed to sustain such a precocious economy and culture in such a restricted ecological setting. New archaeological and zooarchaeological data have revealed the widespread importance of cereal agriculture and domesticated livestock in prehistoric Malta. Modelling the potential for soil erosion has revealed that technical mechanisms to manage the environment were developed by prehistoric agriculturists. But were there failures in the agricultural system, and what impact did this have? Shortly after 2400 cal bc, for example, there was an episode of cultural change – was this a consequence of socio-economic collapse or management change, or poor environmental conditions? An overview of this research is presented in this paper, acknowledging the challenges that exist when comparing archaeological events with environmental data lacking chronological resolution.

**TH5-14 Abstract 11**

Environmental changes and agricultural systems in NW Iberia during the Middle and Late Holocene

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**Keywords:** Agricultural systems, Environmental changes, Middle and Late Holocene, Northwest Iberia, Carpathy

**Presentation Preference:** Oral

Interpretative approaches gathering archaeological and carpathological data with broad palaeoecological data can provide relevant insights on the relation between environmental changes and the evolution of human societies and their agricultural systems. Northwest Iberia stands as a good study-case since abundant palaeoenvironmental studies allow us to understand the major trends in climate, vegetation, erosion events and even atmospheric pollution during the Middle and Late Holocene. This diverse and profuse array of information provides an excellent data-set to contrast with the regional archaeological and archaeobotanical records.
The main focus of this presentation will be the carpological data available for northwest Iberia, including unpublished material. Carpological data from late prehistoric and protohistoric sites allowed the identification of key-moments in agricultural history, associated with the introduction of some crops and the development of new social-ecological systems. These key-moments include the Middle/Late Bronze Age (c. 1800 – 700/600 BC) and the Iron Age (700/600 BC to the 1st century BC) and correspond to significant changes in human societies as suggested by data regarding the evolution of settlement, technology and material aspects of society, and other features.

Developments in storage facilities are also recorded. Especially, underground storage (pits), that proved to be an important strategy for long-term preservation. Moreover, the palaeoenvironmental records suggest significant changes on several levels such as 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 undemanding and erosive soils.

These different environmental and archaeological records will be presented in order to address the main changes in land cover and land use, namely their relation with the evolution of agricultural strategies and social-ecological systems in Northwest Iberia.

The anthropization of the Cantabrian Mountains (NW Iberia) during the Later Prehistory

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Keywords: Anthropization, Landscape Archaeology, Later Prehistory
Presentation Preference - Oral

This paper attempts to provide a historical narrative that accounts for the biography of the cultural landscapes of the Western part of the Cantabrian Mountains based on a social interpretation of archaeological data and paleo-environmental sequences. A diachronic perspective is adopted drawing on in the theoretical and methodological framework of Landscape Archaeology. This is achieved by analyzing the patterns of settlement and subsistence deployed by human groups during the five millennia that mediate between the emergence of agriculture and animal farming (c. 4800 BC) and the Roman conquest of the area under study (late 1st century BC). In light of the data considered for the mountainous area which separates Spanish contemporary regions of Asturias and León, the investigation reflects about the human experiences and the historical processes that intervened in the anthropization and the social construction of the cultural landscapes of the Later Prehistory in the area.

During the Neolithic there is a spread of agriculture and farming. This process can be perceived earlier in the coastal areas than up in the mountains. This resulted in the emergence of humanization processes of the environment characterized by an increase of open areas for pastures and crops related to itinerant forms of production and settlement. Later in the Bronze Age, the anthropization of the territory significantly increased, revealing a certain tendency towards the territorialization of human groups. The Iron Age implied the almost complete adoption of sedentary forms of life by human groups. Iron Age communities developed new livestock and farming practices, now intensified with the emergence of stable crop fields. This new productive pattern led to the emergence of a compartmentalized and highly anthropized landscape around the hillforts. However, this general scheme shows some gaps and exceptions which should be considered in detail. In the first place, they could reveal the limits of the data available for the region. But, more interestingly, they might point out the divergence in the social or cultural livelihoods performed by the communities who inhabited the Cantabrian Mountains during the Later Prehistory.

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 a.s.l) is the patchy nature of our various datasets, moreover, human-environment interactions operate at many spatial and temporal scales, and the integration of problematic. Archaeological and palaeoenvironmental evidence are proxies for human-environment interactions; in some instances, we can identify broad categories of economic activities, such as pastoralism and arable agriculture. In other cases, we can identify actual practices, such as pasture creation via forest burning, or the exploitation of specific animal species or the creation of structures for penning animals.

In this paper, we will consider evidence for the development of high altitude pastoralism in the French Alps during the Late Neolithic and Early Bronze Age via the integration of data-types that operate at different spatial and temporal scales; archaeology, palaeoecology, and sedimentary aDNA. Within the context of the Alps, we argue that these seemingly disparate data allow us to assess a specific and significant form human niche construction (i.e. pasture) during the Late Neolithic and Early Bronze Age. This can be considered a form of coevolution; the intensification and extension of pastoralism, which included high-altitude summering activity in the Alps. This was part of a process where a form of agriculture, and livestock production was associated with the extension of the lactase persistence gene via increased consumption of dairy products - a key stage in the evolution of the high profile and globally recognised alpine landscape. Human manipulation of this specific landscape category also intersects with the continued domestication of animals.

This contribution will present an integrated review of archaeological, palynological, anthropological and sedimentary aDNA from two areas of the French Alps. We will also consider the evidence for phases of landscape destabilisation and the relative importance of climatic and human impact on these sensitive landscapes, a story which starts just before 2000 BC.

Chalcolithic-EBFarming, soil loss, and the development of a karst landscape in western Ireland

Author - Dr. Jones, Carleton, National University of Ireland Galway, Galway, Ireland (Presenting author)
Keywords: Chalcolithic, Early Bronze Age, land use
Presentation Preference - Oral

The timestable 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 development on the Burren (through correlations with palaeoecological and palaeo-hydrological records) and also looks at whether contemporary climatic shifts might have played a role. This informs both our understanding of prehistoric farming practices and also the role of human activities in the formation of karstic landscapes.

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, palaeo-environmental data from ‘Celtic Tiger’ era development-led excavations. The project has compiled and critically assessed the evidence for lifeways and subsistence strategies derived from multiple archaeological sites, including data from faunal and macrofossil analyses and chronological modeling of radiocarbon dates. These data have been integrated with evidence for patterns of landscape change and human
activity derived from palaeoenvironmental records. The study opens up new perspectives on the critical period in Irish prehistory and also illustrates the methodological and theoretical challenges of interpreting archaeological and palaeoenvironmental data.

TH5-14 Abstract 16
Land use and vegetal biodiversity in the Iron Age landscape of Brittany (France)

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Keywords: Iron Age Brittany (NW-France), land use patterns, vegetal biodiversity
Presentation Preference - Oral

Biodiversity has been a popular research topic in the last decades. With the rapid current loss of monodiversity, 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 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 attempt to integrate these different types of data and assess how the results contribute to wider discussions on the link between human behaviour and biodiversity.

TH5-14 Abstract 17
Invisible Prehistoric sites: development of land use by Eurasian nomadic population

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Keywords: Bronze and Iron Age, land use pastoralists, seasonality

A new methodological approach used to detect seasonal campsites occupied by Bronze and Early Iron Age pastoralists living in the desert and steppe areas in the South-East of the Russian Plain helped identify different subsistence and economic activities. Comprehensive studies of two types of the sites by employing the methods of archaeology, soil studies, geography, geomorphology, geoinformatics, geochronometry, palaeobotany provided an opportunity to obtain conceptually new data on the location and operation pattern of winter and summer pastures and camps themselves.

To identify temporary camps, it is important to identify those land areas located in proximity to the camps where grazing was the most suitable at certain times of the year, taking into account natural features. For the winter season it has been demonstrated that deeply cut gullies with rather steep slopes facing south, south-west and south-east are most suitable for winter grazing, determining the existence of temporary winter camps in such areas.

The arrangement of summer temporary camps demonstrates a reverse pattern. It is assumed that summer camps and pastures were located near streams on open wind swept watered settlements rather than near subordinate features of the relief. Such camps can be discovered only if the soil was overlaid by natural deposits, which may occur on sections with sand.
Changes in growth regularities in archaeological timbers - a proxy for the deforestation history

Authors: Dr. Pukienė, Rūtilė, National Museum the Palace of Grand Dukes of Lithuania, Vilnius, Lithuania (Presenting author)  
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Keywords: Dendrochronology, Landscape changes, Vilnius Lower Castle  
Presentation Preference - Oral

Forests are an important component of land cover in temperate climatic zones and deforestation is regarded as a major process in human induced landscape alteration here. Chief models estimating anthropogenic forest area changes are based on calculations of population history and the need of supporting cultivated land. Nevertheless, in some areas the need of forest products can overweigh the need of agriculture resources of contemporary population. Large scale trade in forest products and extensive building activities intensify deforestation and cause bias in models based only on the population dynamics. Some corrections can be made by analysing landscape dynamics from the point of forest state dynamics. 

Tree growing conditions are recorded in the regularities of annual tree-rings and the history can be detected using dendrochronological methods if sufficient material is available. The presented study aims to evaluate forest state changes in the geographic region around the Lithuanian capital Vilnius over second millennium CE. Large amount of archaeological constructions are preserved in cultural layers of Vilnius Lower Castle site and excavated during archaeological investigation. Pine timbers representing different centuries of the second millennium CE were analysed using dendrochronological methods. Several parameters were evaluated and compared with those in modern pine forests. 

Tree age curve also became more expressed, and much younger trees started to be used, even for high social status buildings like Grand Duke’s palace. These changes clearly indicated changing state of forests and coincided with intensified timber export from Eastern Baltic to deforested Western Europe regions. Results suggest that timber trade between regions with different population density (and therefore forest cover) could be additional important factor affecting deforestation in timber supply regions.

Investigation of soils from archaeological monuments using biological methods

Author: - Dr. Gerasimov, Dmitriy, Museum of Anthropology and Ethnography Rus. Acad. Sci., St.-Petersburg, Russian Federation (Presenting author)  
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Keywords: ancient soil, Bolgar city  
Presentation Preference - Oral

During thousand years of history of agriculture the total area of settlements and arable land reached a very significant scale. Due to the different systems of the people’s settlement in ancient and medieval times, it can be assumed that large areas of land in a particular moment of history had different forms of anthropogenic influence, traces of which are not currently recorded at the morphological level. It is assumed that the ancient existence of human impact on the landscape would remain at the level of the soil biota, the most sensitive and mobile soil component. The aim of this work was to identify the soils which had anthropogenic impact in different historical periods, as well as reference sites, where soil developed without human intervention. The reconstruction of some aspects of agriculture in the territory of the ancient city Bolgar (X-XV centuries, Tatarstan, Russian Federation) has been carried out on the basis of archaeological, microbiological and biochemical data and has been obtained new data about anthropogenic impact.

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-Eastern border (south-east of the Gulf of Finland) in Middle and Late Holocene (5000-2000 cal. BC) was suggested basing on the last decade multidisciplinary studies. This model was improved and got chronological references basing on archaeological data – remains of Stone Age coastal settlements. Strict relations between sea shoreline and human settlements/hunting camps ended at the time of the first farming societies (Corded Ware tradition) appeared in the region.
TH5-15
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, Free University Amsterdam, Amsterdam, Netherlands (Presenting author) Co-author(s) - Jonker, Klevra, Max Planck Institute for Evolutionary Anthropology, Leipzig, Germany Co-author(s) - Brems, Dieter, University of Leuven, Department of Earth and Environmental Science, Leuven, Belgium Keywords: chemistry bioarchaeology, isotope, trace element Presentation Preference - Regular session

Trace element and isotope analyses are powerful tools for reconstructing past human diets, mobility and environments as well as establishing chronologies and provenancing materials and artefacts. With the recent developments in measurement methodologies for mass spectrometry during the 90's, it is now possible to precisely and accurately measure stable isotope compositions of new elements (e.g. B, Ca, Cu, Fe, H, Mg, Nd, Pb, Sr, Sr, Zn) in all kind of materials, opening up new perspectives for archaeological sciences. This session aims to bring together researchers that are working on new techniques as well as scholars that employ traditional techniques using novel approaches to interpret their data (for example the interpretation of multiple isotope/trace element analyses of the same sample). We invite contributions that focus on a variety of materials, such as human or animal tissues (e.g., bone, tooth, blood, shells), archaeological materials (e.g. raw materials, ceramics, glass artefacts, metal, building stones) or environmental samples from archaeological sites (e.g. speleothems, soils). These contributions should show the potential of heavy stable and radiogenic isotopes (Nd, Pb) for archaeological sciences or present new developments in light stable isotope analyses (C, H, O, N, S). Studies that integrate isotopic/trace elemental and archaeological data in an innovative way are particularly welcomed, as well as discussions on the potential and limitations of these analyses. We hope that this session will demonstrate that these new techniques hold great potential for a more integrated interpretation of the archaeological record and that it is possible to get relevant archaeological information which is currently beyond reach. **TH5-15 Abstract 02**

**Zinc isotope compositions of bone and dental enamel and their relationship to diet**

Author - Dr. Jacoen, Klevra, Max Planck Institute for Evolutionary Anthropology, Leipzig, Germany (Presenting author) Co-author(s) - Sapak, Paul, University of British Columbia, Vancouver, Canada Co-author(s) - Beasley, Molina, University of California, San Diego, United States of America Co-author(s) - Harshner, Estelle, LAMPEA, MSH, Aix en Provence, France Co-author(s) - Collister, Roslin, INRAP, Naness, France Co-author(s) - Balzer, Vincent, ENS Lyon, Lyon, France Co-author(s) - Schoeninger, Margaret, University of California, San Diego, United States of America Co-author(s) - Richards, Michael, University of British Columbia, Vancouver, Canada Keywords: archaeochemical sciences, dietary tracer, non-traditional isotopes Presentation Preference - Oral

Isotopic analyses of carbon and nitrogen are conventionally employed in bioarchaeology for dietary reconstructions. These elements are however contained in the bone collagen which deteriorates over time. Mass spectrometry advances now allow trace element isotope analyses of biocarbonate. 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, environmental 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.

**TH5-15 Abstract 03**

**Hydrogen stable isotope ratios measured in bone collagen from Danish prehistoric samples**

Author - van der Suijs, Laura G.J. (Presenting Author) School of Geography, Archaeology and Palaeoecology, Queen's University Belfast, United Kingdom Co-author(s) - Ogile, N., School of Planning, Architecture and Civil Engineering, Queen's University Belfast, United Kingdom Co-author(s) - Reimer, P.J., School of Geography, Archaeology and Palaeoecology, Queen's University Belfast, United Kingdom Keywords: Hydrogen, Bone, palaeoecot Presentation Preference - Oral

Palaeodietary 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.). 18O ratios have been shown to function as trophic level indicator (Birchall et al., 2005; Reynard and Hedges 2008), which can be very useful to aid our interpretation of the 13C and 15N ratios and improve our understanding of palaeodietary habits and subsistence practices. Hydrogen in organics consists of a non-exchangeable and exchangeable fraction; the latter will equilibrate with atmospheric hydrogen with atmospheric hydrogen from water vapor in the lab environment, resulting in meaningful 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 Linford 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. Birchall et al., 2005. Rapid Comm. in Mass Spectrometry 25. Meier-Augenstein et al., 2011. Rapid Comm. in Mass Spectrometry 25. Qi et al. 2010. Rapid Comm. in Mass Spectrometry 24. Reynard 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: bioapatite, isotopes, trace elements

Presentation Preference - Oral

Bioapatite from mammal tooth enamel is a popular biomaterial used in the reconstruction of palaeoenvironment and palaeodiet. It records information about the animal’s environment and diet on a sub-animal 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 (δ13Cep, δ18Oc & δ18Op) are combined to test the reliability of trace element profiles from mammal teeth in recording seasonal changes in environment and diet of the animal.

A method is presented that links the various geochemical records within a tooth sequence using mineralization sequences and oxygen isotope seasonality. This way, a 3 year trace element and stable isotope record from horse tooth enamel is created showing seasonal variation in trace elements and isotope ratios linked to changes in climatic conditions and diet through the animal’s lifetime.

This study shows how an entire new set of trace element proxies, that can be measured quickly and non-destructively, may yield information on palaeoenvironment and palaeodiet. These trace element measurements yield information from precious archaeological samples that could otherwise be obtained solely through destructive sampling. The versatility of the µXRF and LA-ICP-MS methods opens up a wide range of applications for trace element analysis in archaeology.

TH5-15 Abstract 05
The geochronological relationship between soil, plant and streamwater; implications for migration studies

Author - Ryan, Saskia, Trinity College Dublin, Dublin, Ireland
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Keywords: Geographical discrimination, Multi-element composition, Strontium isotopes

Presentation Preference - Oral

Strontium isotopes (87Sr/86Sr) and rare earth element (REE) analyses of rock, the leachable fraction of soil, plant and surface waters are applied as chemical proxies to assess chemical reservoir interactions, element bioavailability and geographic variability. These processes are the basis for geographic discrimination and associated archaeostratigraphic provenancing. 53 biosphere samples were collected from a small geographic area in Co. Meath, a region of Ireland that has highly variable bedrock and surficial geology and hosts significant archaeological sites including, Newgrange, the Hill of Tara and Knowth. These multi-element and isotope data geochemically constrain this region and the high degree of spatial variability in 87Sr/86Sr highlights the inherent requirement for high-density sampling in order to isotopically characterise distinct reservoirs. The results of this study provide a baseline of bioprose 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 shell mound complex

Author - Dr. Hausmann, Niklas, Foundation for Research and Technology - Hellas, Heraklion, Greece (Presenting author)

Keywords: LBB, 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-anual accumulation rates, exploitation intensity, and degrees of biostratification within the stratigraphy. This dataset is now being analysed for the first time through 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 07
Archaemetrical studies of pottery

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Keywords: artifactual research, chemical analysis, pottery

Presentation Preference - Oral

The basic carrier of information on the project in question is pottery from Wklejowato'sa site dating back to the early pre- roman iron age. The multi-level analysis of the existing source base assumes its full elaboration with regards to classical archeological description, connected comparatively with an innovative use of the methods of chemical analysis. The analysis will cover archeological materials obtained mostly as a result of a source search query conducted in museums, but also among entities that currently conduct excavation research. The chemical tests will be performed on the pottery using three independent procedures of samples preparation. In the first procedure, a ground part of pottery will be subject to extraction with hydrochloric acid. In the second procedure, the possibility of leaching components of a sample from the external layers of the tested pottery will be determined; so as to compare the results with the results of non-destructive analyses (e.g. XRF) where only the surface of a sample is analyzed representing the acid-leached fraction of the surface of the tested samples. In the third procedure, a ground part of pottery, will be subjected to decomposition using hydrofluoric acid at room temperature in closed Teflon vessels. After sample preparation the content of the selected elements in the solutions obtained will be determined: by spectrometric techniques: flame atomic absorption (FAAS) or flame optical emission (FOEES) spectrometry, microwave induced plasma optical emission spectrometry (MP-OES) and inductively coupled plasma optical emission spectrometry (ICP-OES). The elaborated procedures and instrumental analytical techniques enable performing tests that have so far been practically unavailable in archaeometric research.

TH5-15 Abstract 08
Elemental and Sr/Nd isotopic investigation of late Hellenistic to early Roman glass bowls and sand raw materials from Lebanon

Author - Brem, Dieter, KU Leuven, Leuven, Belgium (Presenting author)
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Keywords: Natan glass, Sand raw materials, Isotopes

Presentation Preference - Oral

Excavations in the Souks area of Beirut, Lebanon, not only revealed large amounts of glass artefacts from the Hellenistic to early Roman period 1 but also remnants of primary tank furnaces, dating to the early 1st century CE 2. We determined the major and minor elemental compositions of 66 mid-2nd century BCE – early 2nd century CE cast glass bowls from Beirut via electron microprobe. The elaborated procedures and instrumental analytical techniques enable performing tests that have so far been practically unavailable in archaeometric research.

TH5-15 Abstract 09
Science and multidisciplinarity in archaeology

Author - Dr. Hausmann, Niklas, Foundation for Research and Technology - Hellas, Heraklion, Greece (Presenting author)

Keywords: Science and multidisciplinarity in archaeology

Presentation Preference - Oral

Science and multidisciplinarity in archaeology
The Sb-decoloured glass was made from a different sand source with higher Si2O and lower Al2O3 and CaO. Mixed Mn-Sb-decoloured glass has intermediate compositions, suggesting they are thereof of a mixed origin. Sr and Nd isotopic analyses confirm the different primary origin of the Sb-decoloured glass. The isotopic signatures of the other glasses correspond well to those measured in some of the Lebanese sands, suggesting they were indeed produced locally.

References:
1. J. Jennings, Vessel glass from Beirut (Bey 006, 007 and 045), Berytus Archaeological Studies 48-49, 2006.

TH5-15 Abstract 09

Iron Slag and the Quest for Provenance


TH5-15 Abstract 10

Iron isotope as a new tool for ancient metal tracing: comparison with classical tracing methods

Author - PhD student Milot, Jean, Géosciences Environnement Toulouse, Toulouse, France (Presenting author)
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Keywords: Ancient metals, Iron isotope, Provenance studies
Presentation Preference - Oral

The development of precise and accurate analytical techniques over the last decades has allowed the expansion of range of methods for ancient metal tracing. Elemental and isotopic analyses are now widely used for this purpose. For a relevant archaeological interpretation, metallurgical processes must be taken into account, and analyses must be performed on archaeological ore, slag and metal. So far, isotopic methods were rather employed for non-ferrous metal tracing (e.g., Cu) whereas elemental analyses were used for ferrous metal tracing (e.g., Fe). However, current non-elemental and isotopic methods show limitations, which underline the need to develop new tracers to complement existing ones.

We used Fe isotopes as a new tool for ancient metal provenance studies. Isotopic ratios 57Fe/54Fe and 56Fe/54Fe were measured using a Multiple Collector Mass Spectrometer after sample dissolution and Fe purification. We first developed this approach by analysing materials from archaeological experiments on iron ore reduction. In order to compare our results with classical tracing methods, we also analysed the Fe isotope compositions of archaeological materials whose provenance hypotheses have been established with trace elements analyses of slags. Furthermore, some materials coming from different regions of ferrous and non-ferrous metal production were analysed to assess the tracing potential of Fe isotopes compared to trace elements and Pb isotope analyses.

Our first results show that the biochemistry process does not induce Fe isotope fractionation, i.e., the signature of metals and slags reflect that of their corresponding ores. Moreover, Fe isotopes analyses tend to confirm the provenance hypothesis of ancient artefact established with trace elements analysis of slags. The results obtained so far suggest that Fe isotopes are a relevant tracer for archaeological materials, which can be applied to ferrous metals. The combination of Fe isotopes with the more classical involving trace elements or Pb isotopes analysis could allow to refine previous provenance hypotheses of ancient metals.

References:
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.

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**TH5-15 Abstract 13**

**Chemical and physical composition of disturbed and less disturbed soil of the Dūkšteliai 1 site**

**Author** - Gedminienė, Laura, Nature Research Centre, Vilnius, Lithuania

**Keywords:** Environmental archaeology, geochemistry, archaeological research, ground flotation, microscopic bioarchaeology

**Abstract**

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 (fint tools and their processing refuse, burnt bone, charcoal pieces, ceramic fragments) and their correlation with the two structures – several natural science methods were used to make a research on the content of the structures. Ground fotation and microscopic bioarchaeological research was done in order to find macro-botany remains that could reveal some details about prehistoric people diet. Geochemical analysis and loss on ignition method (LOI) were also used to find out 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, P, Pb, Rb, Sr, Ti, Zn, S was done using energy-dispersive x-ray fluorescence SpectroXepos equipment and the Turbocahn calibration method for pressed pellets. Also samples were dried at the temperature of 110º C; then heated at 550º C and 950º C to burn out the organic matter and carbonates, respectively. As a result, insignificant geochemical difference between samples has been observed and only minor inequality of element contents could be seen. Using Ward’s method and Euclidean distances a tree diagram for 24 variables was drawn and trace elements were classified into groups representing: 1) clay minerals – Al, Rb, K, Ti, 2) carbonates – Sr, Ca, Ba, and 3) organic matter group with higher amount of Fe, Mn, Co, Zn, P, S. The new data show that higher concentrations of all three groups elements accumulated in organic richer samples, which yielded more charcoal and pottery – in the center of the structures. In this poster presentation the upcoming results of all the investigation procedures undertaken will be presented with the subsequent conclusions about the presumptive functional use of the prehistoric structures in Dūkšteliai 1 site.

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**TH5-16 Abstract 02**

**Late Holocene multiproxy palaeohydrological and archaeoological records from Littletton Bog, Ireland**

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**Co-author(s)** - Young, D. S., University of Reading, Reading, United Kingdom

**Keywords:** palaeohydrology, archaeology, Littletton Bog, Ireland

**Abstract**

This paper will argue that in order for the invaluable insights from palaeoecological studies on wetlands to be more than just the local (wetland) site level, environmental data-sets need to be compared across various wetland and dryland sites and regions. In this way, high quality wetland palaeoecological research can impact significantly beyond the sub-discipline of wetland archaeology. These issues will be discussed by considering Bronze Age environmental change in the Flap Fen Basin in the East Anglian Fens (UK) and beyond. Individual wetland sites like the newly discovered Bronze Age settlement at Must Farm will be placed within a wider regional (East Anglian), national (UK) and international (north-western European) context. This will demonstrate how we may integrate short-term events and lived experiences of environmental change at the local level with longer-term ‘global’ developments.

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**TH5-16 Abstract 01**

**Forging a Fenland framework: contextualising palaeoecology & environmental change in UK Fens & beyond**

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**Keywords:** contextualising wetlands, East Anglian Fens, Environmental change

**Abstract**

Environmental data is one of wetland archaeology’s most important data types. The palaeoecological significance of these often well-preserved remains cannot be denied. Often lacking on dryland sites, they provide information on past economies and subsistence, and allow detailed reconstructions of human-environment interaction. Despite this, the results of palaeoecological research on wetland sites do not always impact beyond the sub-discipline of wetland archaeology, which remains somewhat isolated from mainstream archaeology. If palaeoecological studies of wetland sites are to contribute to our general understanding of animal husbandry, agricultural developments or environmental change at various spatial and temporal scales, wetland archaeologists must contextualise wetland sites in a broader chronological and geographical framework. This paper will argue that in order for the invaluable insights from palaeoecological studies on wetlands to be more informative on more than just the local (wetland) site level, environmental data-sets need to be compared across various wetland and dryland sites and regions. In this way, high quality wetland palaeoecological research can impact significantly beyond the sub-discipline of wetland archaeology. These issues will be discussed by considering Bronze Age environmental change in the Flap Fen Basin in the East Anglian Fens (UK) and beyond. Individual wetland sites like the newly discovered Bronze Age settlement at Must Farm will be placed within a wider (regional) (East Anglian), national (UK) and international (north-western European) context. This will demonstrate how we may integrate short-term events and lived experiences of environmental change at the local level with longer-term ‘global’ developments.

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**TH5-16 Abstract 03**

**MULTIPROXY WETLAND AND LAKE ENVIRONMENTAL ARCHAEOLOGY: FROM NICHE CONSTRUCTION THEORY TO ANCIENT DNA**

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**Co-author(s)** - Whitelouse, Nicki, University of Plymouth, Plymouth, United Kingdom

**Abstract**

Archaeological sites in wetlands and on or by lakes have revealed remarkable aspects of the human past that are out of reach of typical dry-land archaeology. Meanwhile, the increasing sophistication of palaeoecological methods, from biomarkers to aDNA, are also producing novel data on human activities from both lakes and wetland environments. These environmental archives can also record in unparalleled detail the slow and non-linear transition from human colonised niches to the ecological dominance that characterises the modern world. Whilst the excavation of wetland sites started in NW Europe, especially on the famous lake villages of Switzerland, this has now expanded throughout Europe, from as far north as Finmark to as far south as the Balkans and Iberia. Because of the exceptional importance of environmental data to wetland archaeology its study has always been closely related to palaeoecology and this session will exploit this Ecology-Archaeology synergy. In this session, we will address how studies of wetland sites (wetlands and lakes) can contribute to studies of Holocene hunter gatherer lifeways including plant and animal husbandry, to the history of agriculture worldwide, and the relative importance of environmental change at a variety of scales from the short-lived and local ‘events’ to global trends.
TH5-16 Abstract 04

Reconstructing cattle management in Neolithic Switzerland using multi-isotopic analysis
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Keywords: multi-isotopic analysis, cattle management
Presentation Preference - Oral

The lakeshore settlements in Switzerland provide the unique opportunity to study various aspects of the Neolithic society and its economy. Understanding cattle management is one of the key questions in our research project that focuses on several sites in the lower Lake Zurich basin and the site of Arbon 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-phase settlement with a fifteen-year long occupational phase (3384–3370 BC) providing the opportunity to capture a 'snapshot' in time. All sites investigated have provided vast and well documented cattle bone collections. We applied strontium, oxygen, carbon and nitrogen isotopic analyses to those remains to gain insight into strategies of animal management. Key questions were: Were cattle kept in or near the settlements or were they pastured further away? Where are potential pasture grounds? Is there evidence of regular mobility, maybe linked to seasonally varying patterns of alpine summer pasturing? On which level was cattle herding organised (household, village, networks between villages)?
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 breakthroughs 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 inhabited these sites 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.

Investigating Iron Age lakeside settlements within their palaeoenvironmental context

Palaeoenvironmental methods offer the opportunity of retrieving information from a range of proxies around lakeside settlement usage that would otherwise be difficult to obtain without excavation and can augment studies where excavation is possible. These methods also allow us to place these sites within a wider environmental context which can aid our understanding of local and regional conditions across the time period in question. Sediments are retrieved both on and adjacent to, these structures and can be analysed for ecological, biological and environmental data.

Here, we present palaeoentomological data, in particular Coleoptera (beetles) and Chironomidae (non-biting midges), from archaeological excavation deposits and parallel lake core sediments from Black Loch of Myrton, Scotland. This Iron Age lochside settlement consists of a small number of structures constructed on peat/fen material at the margins of a small, productive loch. The main aim of the work is to inform our understanding of living conditions on the site, any associated impacts upon the nearby lake system and explore the wider implications for our understanding of lakeside settlements of this period. Beetle remains provide an understanding of both the environmental conditions across the site and in situ activities. Analyses indicate beetle and fly remains, ectoparasites (e.g. fleas), characteristic of decomposing floor litter layers and less than salubrious living conditions. Changes in the beetle record, 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.

The results of the work form part of a larger project that uses survey, palaeoecological, biogeochemical and aDNA analyses to study crannogs and lakeside sites across Ireland and Scotland to study patterns in construction, function and longevity of these monuments, across wider geographical scales. The Celtic Connections and Crannogs project, funded by AHRC, sets out to re-examine crannogs as both a cultural and environmental phenomenon that link Iron Age and Medieval communities of SW Scotland and N Ireland.

How could Crannogs impact on lake environments?

Crannogs, or artificial islands, were constructed during the Iron Age to Medieval period throughout Scotland and Ireland. At least 1500 crannogs are recognised, but little is known about their longevity and continuity of use, and they are difficult and expensive to excavate. An alternative, or complement to excavation is to assess these questions through the impacts of crannog construction and use on adjacent lake sediments. However, it is unclear what the impact of crannog construction and use has been on lake environments.

Using sediment cores we investigate crannogs in ten lakes and one archaeological site. The cores will be analysed for loss-on-ignition, stable carbon and nitrogen isotopes, and high-resolution XRF in order to highlight input of clay, gravel, and stones from crannog construction. Increase in heavy metals (Cu, Zn) might be related to metalworking on crannogs. In addition, the analysis of pollen, invertebrates, and ancient DNA, will provide insights into land use around the lakes and the conditions on the crannogs themselves. Changes in C:N ratios, diatoms, biogenic silica, and invertebrates will demonstrate how crannog construction and use are driving changes in lake environments. Preliminary results indicate that XRF data (Cu, Ti, Zn) corroborate sediment stratigraphy and can be used to distinguish periods of crannog construction and use. In one of the sites, Lough Yoa, diatom assemblages indicate a substantial increase of nutrients during this period. The increased variety of submerged substrates due to crannog building also led to a more diverse cladoceran assemblage.

From the lakeshore: settlement and technology in the later Mesolithic

This lake-side site is one of very few wetland archaeological occupation sites in Ireland that extends over the Mesolithic-Neolithic transition. The site consists of a series of constructed brushwood layers with intermediate peat lenses built beside, or into, the adjacent lake, with up to five different occupation phases. Within these layers are a variety of archaeological features, including upright stakes, wooden ‘planks’, hearths, and abundant lithics (Fredengren, 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 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 refurbishment 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.
Insights into the occupation of a Scottish Iron Age wetland village using organic geochemistry

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Co-author(s): Henderson, Andrew, Newcastle University, Newcastle Upon Tyne, United Kingdom
Co-author(s): Brown, Tony, University of Southampton, Southampton, United Kingdom

Abstract

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 silicic acid 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 polyyclic aromatic hydrocarbons to reveal fire regimes, n-alkanes to suggest changes in the surrounding vegetative landscape and cropping practices, and faecal sterols and bile acids to indicate the presence of animals within the roundhouses. Changes in the intensities of these activities and the amount of human faecal input reveal how the wetland village dynamics and uses altered over time. Combining these organic geochemical analyses with archaeological investigations provides a more holistic site interpretation and, when compared with other Celtic Iron Age sites, helps to build a clearer picture of societal functioning and change over this time period.

References

Science and multidisciplinarity in archaeology

**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 3000-1000 BC) was a period of major cultural changes. However, it has been debated for decades if the major cultural changes that occurred during this period resulted from the circulation of ideas or to which extent they were accompanied by human migrations. To investigate these questions, we sequenced low-coverage genomes from 101 ancient humans from across Eurasia.

We show that the Bronze Age was a highly dynamic period involving large-scale population migrations and replacements, responsible for shaping major parts of present-day demographic structure in both Europe and Asia. We find genetic evidence for the expansion of the Yamnaya culture from the Pontic-Caspian both into North Eastern Europe as well as into Central Asia. Our findings are consistent with the hypothesized spread of Indo-European languages during the Early Bronze Age.

**TH5-17 Abstract 02**

**What ancient DNA can tell us about the origin and spread of Indo-European languages**

**Author:** Dr. Haak, Wolfgang, Max Planck Institute for the Science of Human History, Jena, Germany (Presenting author)

**Keywords:** ancient DNA, Indo-European, prehistory

**Presentation Preference:** Oral

Ancient DNA studies on Mesolithic, Neolithic and Bronze Age individuals from Western Eurasia have recently thrown fresh light on migrations in Europe's prehistory. The Early Neolithic period in Europe (~8,000-7,000 years ago) was characterized by closely related groups of early farmers, which were different from indigenous hunter-gatherers, while Russia was inhabited by a distinctive population of eastern hunter-gatherers with affinity to Paleo-Eskimo Siberians. The Middle Neolithic saw a resurrection of hunter-gatherer ancestry throughout much of Europe, while the contemporaneous Yamnaya pastoralists of the Russian steppes shared about half of their ancestry with the preceding eastern European foragers and the other half with Caucasian hunter-gatherers. This Yamnaya-like steppe ancestry arrives in Central Europe ~4,500 years ago, as Late Neolithic Corded Ware individuals traced ~70% of their ancestry to the Yamnaya, and is thus a good temporal fit for the steppe hypothesis, which proposed a spread of Indo-European languages via the steppes starting from a proposed homeland north of the Black Sea. This third ancestry component persisted until the present-day in all Europeans and documents a (second) major expansion into Europe from its eastern periphery.

The accompanying genetic turnover was high enough to support a language replacement, a criterion that was previously suggested to only apply to the language-farming dispersive hypothesis in the light of the Mesolithic-Neolithic transition. As a consequence, these ancient DNA results have direct implications for the spread of Indo-European language groups and at the base of the debate about the placing field between the two rivaling hypotheses. It is possible that additional ancient DNA from other prehistoric cultural groups from the Caucasus and surrounding regions will provide plausible temporal and contextual fits for the proposed homeland of Proto-Indo-European.
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 (Zoroastrian) religion, Old Baltic, Germanic and Old Norse beliefs had a fundamental impact on the eschatological beliefs, and accordingly on the burial rituals. Flesh and earth, for example, are considered to be of the same material substance and can thereby be transformed into each other. In the same way, bones, the hard part inside the soft flesh, are equated with the stones in the earth and with rocks and mountains, while hair is associated with plants. Life consists of a limited number of elements from which everything is composed. My paper will discuss this with focus on finds from some recently excavated ritual places in eastern Sweden, and interpret the finds in the light of a broader Indo-European background. I will use the Old Vedic ritual system as one important comparative, and also focus on a discussion of the interpretations in the light of the new results from ancient DNA studies.

TH5-17 Abstract 05
Can scholars envisage a Baltic Origin of Homer’s Epic Tales?
Author - Prof. Bendell, Giuliana, Università Cattolica del sacro Cuore Milano, Milano, Italy (Presenting author)
Keywords: Bronze age, Homer, Metal working around the Baltic Sea
Presentation Preference - Oral

According to a recent challenging hypothesis by the scholar Felice Vinci, the real setting of the Iliad and the Odyssey can be identified not as the Mediterranean Sea, where it proves to be undermined by many inconsistencies, but rather in the North of Europe. The sagas that gave rise to the two poems came from the Baltic regions, where the Bronze Age flourished in the second millennium B.C. and where many Homeric places (Troj, Ithaca, Fáros) along with Ulysses’ wanderings can still be identified today. Moreover, this archaic Achaeon civilization extended on all the Baltic coasts, such as, for instance, along the Swedish coasts, where today’s Bay of Nystad is the ancient Aulis, where the Achaeans fleet, according to the Iliad, gathered before setting for Troy. As regards the Baltic Republics (Estonia, Latvia, Lithuania) there are many convergences with Greek mythology. The blind Achaeon who founded the Mycenaean civilization in the Aegean in the 16th century B.C. brought these tales from Scandinavia to Greece after the end of the “post-glacial climatic optimum”. They then rebuilt their original world – where the Trojan War and many other 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, until 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 Hellenic poems and the rest of Greek mythology are the last memory of the feats and events happened in the lost Nordic homeland of their Achaean ancestors, before they moved towards the South of Europe. This new perspective conforms to the most recent views of archaeology: the “radio-carbon revolution”, based upon radiocarbon dating, adjusted with dendrochronology, has backdated of many centuries the rise and development of the European Bronze Age and, on the other hand, a very ancient city, dating back to the third millennium BC, was recently found by Swedish archaeologists in the site of Bjaestom, near Hernsoerd.

TH5-17 Abstract 06
The Settlement System of Pit-Grave Culture of Central Ukraine
Author - Syvopal, Mykhaylo, Cherkasy Archaeological Museum, Cherkasy, Ukraine (Presenting author)
Keywords: Settlement System of a Pit-Grave Culture, Settlement System
Presentation Preference - Oral

Having excavated dozens of Pit-Grave burial mounds in Central Ukraine the author began the search for Pit-Grave settlement relics and as a result of a 20-year-long research has discovered more than 30 such objects, divided into two types: 1) basic long-term settlements; 2) temporary cattle herders’ sites.

The author has partially excavated one of these basic settlements (Dasiatyn). It belongs to the most widespread type: 1) the settlements on small (0.5-1ha) islets (or peninsulas) in wide floodplains of the Dnieper River and its tributaries. The Dasiatyn type settlements have a relatively thin (0.4-0.7m) and a rich archaeological layer (up to 100 finds per 1m²).

Small (0.1-0.3ha) and poor in relics (1-10 finds per 1m²), temporary sites have been found in 2a) floodplain islets/peninsulas (often near basic settlements) and under the conditions of high topography: 2b) at the top of watersheds but next to a water source; 2c) on the high bank terrace of small rivers of the 2nd and 3rd order; 3d) on the low promontories of small rivers. The last subtype is more known in a number of other territorial variants of Pit-Grave culture, though the watershed subtype is a new one.

The data deriving from the study of these settlement relics suggests that the Pit-Grave population of the Middle Dnieper Area practiced transhumance, insignificantly complementing their diet with the help of fishing, hunting and food gathering. The vast majority of the population lived in basic settlements, located on the floodplain islets in collective of 50 to 100 persons (most likely 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.

TH5-17 Abstract 07
Back to square one? The legacy of Marija Gimbutiene (Gimbutas) in the light of recent DNA findings
Author - Dr. Markylä, Inga, Viron, Denmark (Presenting author)
Keywords: Gimbutes/Gimbutas, Migrations, Steppe cultures
Presentation Preference - Oral

Recent qDNA findings seem to pinpoint a massive migration from the steppe area towards Central Europe occurring around 4500 years ago (Haak et al., 2015; Albertson et al., 2015). Genetic studies are usually taken as evolutionary histories from the past, and not used in temporal dating references. Paradoxically they rather produce a series of snapshots, which can be compared to the statistical uncertainties of applied dating methods and a still very limited dataset, analyzed with the help of mathematical models. Thus archaeology more than ever is challenged by the questions of why and how. The paper aims to reflect upon Marija Gimbutas’ legacy in the Indo-European debate, how she saw the instrumentation of human movements and mixing, also with reference to other contesting thoughts.

TH5-17 Abstract 08
Archaeological Modeling of the Spread of Indo-European Traditions in Late Prehistoric Eurasia
Author - Dr. Johnson, James, University of Chicago, Chicago, United States of America (Presenting author)
Keywords: Archaeological Modeling, Demography, Indo-Europeans
Presentation Preference - Oral

Echoes of Marija Gimbutas’ highly influential research still permeate the more recent work on the spread of the Indo-European languages. This course work focusing on the homeland of the Proto-Indo-European. 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 levied 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 event 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: sharper focus on the genetic make-up of individuals, specific burial, and specific words associated with ancient concepts or appearances of material culture. Despite the numerous reviews of the Eurasian steppes and Central and Eastern European archaeological material, a sustained inquiry into middle-range demographic and socio-political processes has yet to be implemented. To accomplish this, I present a preliminary demographic model that seeks to account for the socio-political, spatial, and temporal nuance that have been and remain crucial to anthropological and sociological studies of culture. Through an integrated methodology comprised of demographic, spatial, and statistical analyses, as well as a new theoretical approach - the assemblage of population aggregations - 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.

TH5-17 Abstract 09
Indo-Europeans in the East Baltic Region. A new data and old problems
Author - Assicot, prof. Merkeniitis, Vilnius University, Vilnius, Lithuania (Presenting author)
Keywords: Indo-Europeans, Linguistics
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 Pit Grave culture people from the Pontic-Caspian steppes, or locally initiated changes. According to M. Gimbutas (1991), a massive infiltration of Kurgan people from the steppe areas initiated cultural changes in Central and Northern Europe. However, other archaeologists suggest that several
smaller innovations or gradual local changes played the main role in the cultural transformation of a very wide region (Barkoff & Winter 1999, 175). However after 3000 BC a new type of sites and artefacts appeared in the Baltic Region. On the basis of these radical changes in material culture one can claim that almost all aspects of human life, social, ideological and economic has changed radically. After a recent studies of ancient DNA (Allentoft et al. 2015; Haak et al. 2015) a new important data were added to old debates of linguistics and archaeology.

The aim of the paper is to compare archaeological data of Corded Ware and post Corded Ware people from the East Baltic Region to the data of Pontic-Caspian steppes, and to try to find traces of cultural influences. A new DNA discoveries will be used as well.

TH5-17 Abstract 10
Visitors from the Steppes. The Scandinavian perspective
Author - Prof. Randiborg, Klæs, University of Copenhagen, Copenhagen, Denmark (Presenting author)
Keywords: Neolith, 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 (Gimbutiene, 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 from the first people carrying out Neolithic farming and rearing of domesticated animals (Renfrew 1987). This idea is a ring of simplicity about when it correlates with the basis of archaeology: Neolithic expansion from the Near East and Anatolia to southeast Europe extended to Central Europe and later on to the North, with a parallel Neolithic expansion from Anatolia to the Mediterranean and on to Western Europe.

The paper examines the archaeological elements of possible Steppe origins in Scandinavian Neolithic and how these correlate with the aDNA findings.

TH5-17 Abstract 11
The introduction of Indo-European in the later South Scandinavian Neolithic
Author - Prof. Hveisn, Runes, University of Copenhagen, Copenhagen, Denmark (Presenting author)
Co-author(s): Krommen, Guus, University of Copenhagen, Copenhagen, Denmark
Keywords: Corded Ware, Indo-European, Proto-Neolithic
Presentation Preference - Oral

With the exception of Basque, Finnish, Estonian, and Hungarian, the modern linguistic landscape of Europe is almost entirely shaped by a single language family: Indo-European. This perhaps surprising linguistic unity is likely the result of a prehistoric cultural expansion that erased almost all previous languages. By the dawn of history, Europe had at any rate become covered by a patchwork of Indo-European dialects that was Germanic, Celtic, Italic, Baltic, Slavic, Albanian, Armenian, and Greek. These formed the seeds from which grew the modern European languages, such as Italian, German, Lithuanian, and Swedish, not to mention the highly globalized languages English, French, Spanish, and Russian, each of which today have hundreds of millions of speakers.

Language is an important part of human self perception and a creator of identity among human groups. Therefore, language is an important factor when trying to understand cultural change in prehistory. Northern Europe is a region that saw profound cultural changes in the millennium B.C.E. In southern Scandinavia the first agrarian culture, the Funnel Beaker culture, came to an end overlapping with the emergence of “sub-Neolithic” Pitted Ware influences that reached the northern and eastern coastal areas of present-day Denmark from the Scandinavian Peninsula. From around 2800 B.C.E early Corded Ware (Single Grave) societies appeared on the Jutland Peninsula introducing among other things new burial customs, new pottery shapes, new amber ornaments, and new types of stone battle-axes.

The third millennium B.C.E was, no doubt, a period of great material and cultural changes and language must not be ignored when considering these. Instead, language must be viewed and treated as a deeply integrated part and facilitator of the transmission of new ideas, cultural processes and substance economic and material changes. This paper draws on evidence of change in both material culture and in language that took place in the third millennium

B.C.E and combines these evidences into a unified hypothesis on when and how Indo-European language was introduced into northern Europe and southern Scandinavia. After being introduced together with Corded Ware features in central and western Jutland it seems that the implementation of Indo-European happened gradually via long-term cultural transformation processes.

However, in order to understand the cultural and linguistic processes that allowed the introduction of an entirely new language family it is important also to consider the long gone predecessor of Indo-European. This extinct language we refer to as “Proto-Neolithic”. Did this unknown language for human race contribute to the new Indo-European language? How drastic the form of the basis for the vast majority of modern European languages? One further aspect is where we should place the language spoken by the Pitted Ware people and furthermore if it had any impact on the larger language development. Do we still carry relics with us in modern Germanic that can be traced down to the Proto-Neolithic language spoken by the Funnel Beaker farmers and – perhaps even also elements of a Pitted Ware language?

TH5-17 Abstract 12
Linguistics and archaeology: A reassessment of the Indo-European homeland problem
Author - Dr. Chaine, 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 localizes the Indo-European homeland in Anatolia around 6500 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 4000 BC; this is the scenario preferred by many historical linguists, and also by a few prominent archaeologists. While accounting more convincingly for the linguistic evidence, the steppe hypothesis has been criticised for not providing a plausible model for the success of the Indo-European languages. Here the Anatolian hypothesis has an advantage as it correlates with the spread of agriculture.

Research in ancient genetics has now shown that there was indeed an indisputable migration from the steppe within a time frame that matches that of the steppe hypothesis. The new results have a great potential impact on the discussion of the Indo-European homeland problem and may eventually bridge the gap between archaeology and historical linguistics.

This paper 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.

TH5-17 Abstract 13
The canonical Indo-European model and its underlying assumptions
Author - Prof. Demoule, Jean-Paul, University of Paris I, Paris, France (Presenting author)
Keywords: genetics, historiography, Indo-European
Presentation Preference - Oral

Throughout the 19th century, resemblances and correspondences between Indo-European languages formed the foundation of modern linguistics. At the same time, these resemblances and correspondences were explained, from the start, by the postulated existence of an original people (Urvolk) who spoke an original language (Urjargon) 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 waviering between three main contradictory geographical explanations with no possibility of reconstructing with certainty the suggested routes which might have led Indo-European speakers from an original homeland to their various historically attested settlement locations. This is why we are entitled to question the underlying canonical model as an alternative origin myth to the Bible, while at the same time seeking more complex explanatory models.
TH5-17 Abstract 14
DNA Analysis of Late Bronze Age Funerary Context from Eastern Romania

Author - Professor Bolohan, Neculai, Alexandru Ioan Cuza University of Iasi, Iasi, Romania (Presenting author)
Co-author(s) - Ciocpac, Mitic, Alexandru Ioan Cuza University of Iasi, Iasi, Romania
Co-author(s) - Mitu, Florica, Alexandru Ioan Cuza University of Iasi, Iasi, Romania
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Keywords: aDNA, Eastern Romania, Late Bronze Age

Presentation Preference - Poster

The aim of this study is to analyze the ancient DNA and to identify the haplogroup, presenting also the first results obtained on samples extracted from a Late Bronze Age funerary context discovered in Eastern Romania and to identify an efficient and reliable protocol for aDNA extraction. To test whether the protocol is efficient and capable of yielding good quality DNA, extraction was first performed by using the phenol:chloroform protocol and DNA IQ protocols. The funerary context from 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 showed an identity of 97% with HV1 sequences from a previous study conducted by Lippold et al., 2014. According to Eupedia database, Haplogroup T is composed of two main branches T1 and T2 and the both of them have very different distributions, which are diametrically opposed in most regions. Furthermore, the T72 sequence was aligned with haplogroup T sequences from NCBI and used to construct a ML tree, in order to identify the haplogroup assignation.

TH5-17 Abstract 15
Circadian rhythms, moods, and Neanderthals: testing a biological explanation for behaviour

Author - Pazan, Kyra, Ann Arbor, United States of America (Presenting author)

Keywords: energetics, genetics, Neanderthals

Presentation Preference - Poster

Many archaeological studies of Neanderthal mobility and behavioural complexity have begun to draw on biological explanations for behavioural differences from Homo sapiens. If Neanderthals demanded higher energetic requirements than H. sapiens, then it follows that behaviours enabling Neanderthals to maximize energy intake would be selected for. Circadian rhythms and moods are closely linked to energy intake. This study investigates the phylogeographic distribution of alleles linked to regulation of circadian rhythms and moods in twenty-one modern European, Asian, and African populations in order to test the hypothesis that these alleles originated in Neanderthal populations in Upper Pleistocene Europe. It is hypothesized that presence of two alleles, rs10994336 and rs1006737, may have conferred an adaptive advantage on populations living in northern temperate zones during the Pleistocene. The presence of these alleles is linked to both manic and depressive mood states, enabling increased productivity in the summer and conservation of energy during the winter. If these alleles arose in Neanderthal populations, they would be present in higher frequencies in African populations. It was discovered that latter susceptibility allele is present in higher frequencies in African populations and the former is present in higher frequencies in Eurasian populations. This suggests that these alleles were not selected for solely in Neanderthal populations. The results of this study are significant because they caution against solely biological explanations for differences in the archaeological record.
TH6 SCIENCE AND MULTIDISCIPLINARITY IN ARCHAEOLOGY

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.
Production of Encrusted Ceramics in the Carpathian Basin

Among the findings of the Mycenaean culture archaeologist record several thousand objects made of amber. Raw materials for their production (suculite) 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 has 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

The issue regarding the interregional and long-distance connections, networks, exchange, trade and mobility of people and objects in the Bronze Age has been extensively discussed throughout Europe. The newly excavated Early Bronze Age inhumation cemetery with approximately 100 graves in Mikulovice (eastern Bohemia) at which 30 % of the graves contain imported "exotic" and highly valuable commodities such as Baltic amber in hundreds of pieces, sea shells, gold, bronze, is positioned directly on the important long-distance route, the so-called "Amber Road". Extraordinary in the context of the EBA period is a single female grave, which contained more than 420 amber beads, seashells and gold and bronze jewelry.

In addition to a complex analysis of the cemetery, a hypothesis should be verified, that the analysis of skeletons and artefacts from the cemetery situated on the "Amber Road" should reflect the anticipated greater mobility, long-distance contacts and a higher living standard of the members of the local population. Without doubt, this site offers an opportunity for a comprehensive study of the important long-distance route, the so-called "Amber Road". This place is a place from which we can learn about the living conditions of the inhabitants who lived here in the Bronze Age.

Understanding Bronze Age Life– from an Artisanal Perspective

Encrusted ceramics are a visually striking group of objects characterized by the use of white inlay. They are found in the material repertoire of several prehistoric groups throughout Europe but are particularly prevalent in the Carpathian Basin where they form an important, long-standing tradition that transcends individual cultural units. However, although encrusted ceramics ostensibly look similar, our recent analyses have revealed significant variation in the production of inlays. They have also demonstrated local production at sites where encrusted ceramics have hitherto been considered imports. This paper considers the implications of this variation in terms of small-scale responses to a wider regional aesthetic - how to make the colour white - in a range of Bronze Age cultural groups in the Carpathian Basin.
The interplay between technology and geography in the development of trade networks

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Co-author(s): Knappett, Carl, University of Toronto, Toronto, Canada
Keywords: geography, networks, technology
Presentation Preference: Oral

The archaeological record shows that artefacts have been exchanged over huge distances at times in the distant past when such exchange must have been very difficult. In this paper we attempt to describe how these isolated and intermittent interactions can evolve into established trade networks.

Trade implies organised exchange in sufficient volume to provide a definable pattern. Most simply, the ability to conduct trade encodes two very different ‘distance’ scales: the ‘distances’ that traders need to traverse in order for the network to be robust (e.g. well-connected) and the ‘distances’ for which the available technologies permit the ready transportation of goods. As shorthand, we term the former ‘geographic’ distance and the latter ‘technological’ distance. There is a symbiosis between the two: the technological improvements that make travel more reliable and viable encourage network growth, conditioned by geography, which exploits this ability to travel longer distances. We stress that by ‘geography’ we mean not so much Cartesian separation as a reflection of the ‘ease’ of exchange between sites and that the application of ‘technology’ (e.g. the wheel, pack-animals, sail) is conditioned by its ownership.

We shall argue that a simple characterisation of network dynamics can be made on the basis of the ratio of these distances. As time passes, improving technologies lead to a growth in technological distance. The establishment of ‘trading’ networks is necessarily constrained when technological distance is relatively small. At the other extreme, trading networks have become well established by the time that technological distance is relatively large. The tipping point between struggling and established networks arises when the distances are comparable. Technology then permits exchange over just those distances necessary for robust networks to exist and a vigorous growth in exchange occurs. To exemplify these ideas we examine the evolution of maritime networks in the Aegean and E. Mediterranean from the Early to Late Bronze Age. The tipping point for the rapid growth of trade and exchange occurs at the transition from Middle to Late Bronze Age with the large-scale adoption of sail. This becomes clear when Minoan maritime networks are modelled in a way in which this sensitivity to ‘geographical’ distance is explicit. However, on either side of this transition point sensitivity to distance is less important and different computational approaches are required. The implication is that network dynamics in Early, Middle and Late periods has to be understood in terms of different social agency for network formation.

An earlier formulation of these ideas can be found in our paper, From Oar to Sail, published in ‘Maritime Networks; Spatial structures and time dynamics’, C. Ducruet (Editor), Routledge Studies in Transport Analysis, Routledge (London and New York), 2016.

Copper ore: the path from the Tien Shan to the South Urals in the Late Bronze Age

Author: Dr Shcherbakov, Nikolai, Laboratory of Methodology and Methods of Humanitarian Research BSPU, Ufa, Russian Federation (Presenting author)
Keywords: bronze production, Late Bronze Age, West-Asian metallurgical province
Presentation Preference: Poster

Widespread of bronzes production in the Bashkir Uraus is connected with the Late Bronze Age. The study of settlements and funerary monuments of the Late Bronze Age in this area gave massive material on bronze production in the region (waste products, casting molds, copper bars and ingots, particles of copper ore, containers with traces of waste products) and also numerous products made of bronze (knives, chisels, awls, hoddles for vessels, sickles, ornaments and so on). E. Chernykh distinguished in this area a West-Asian metallurgical province connected with the Eurasian Steppe. It is connected with a contact between the two groups of population in the southern Ural: Srubnaya and Andronovskaya (Askalukskaya) cultures. In Bashkir Ural, in the area between the rivers Duma and Urshak, Kazburunovskiy archaeological micro-district belonging to the late Bronze Age is distinguished. There is a group of 5 settlements and 4 barrow burials here. In the process of investigation the complex of sites consisting of five simultaneous settlements - Usmanovo I - III settlements, Muradyevmo I, VII, VIII settlements and 57 Kazburun barrows was examined. Radiocarbon dating (Beta Analytic: 1890 – 1705 BC) proved chronological unity of these barrows and settlements. Numerous traces of bronze production were also found on the territory of Kazburun district. In Bashkir Ural, close to Kargaly mines, there are 770 mines for the extraction of copper sandstones. V. Luknev (Laboratory of Naturally Scientific Methods, Institute of Archeology, RAS, Moscow) and M. Radivojevich (Jesus College Research Fellow McDonald Institute for Archaeological Research) carried out a complex of analyses of all bronze material belonging to one of the large settlements - Muradyevmo settlelement (Kazburun archeological district). Metal was worked on this site – refining, melting, casting. The primary Cu metal could have been imported from other regions as ‘raw’ ingots (bars) artefacts. The provenance analysis imply that the metal worked in the site of Muradyevmo settlement was likely acquired from the ores exploited in the Tien Shan mountains. The UCL and RAS analyses show that there is a significant number of pure copper artefacts that represent stock, ingots, working debris. The pure copper artefacts as implements (knives, etc.) need a closer look typologically etc. (RAN analyses). The tin bronzes are already present as finished artefacts and there is no evidence for their production thus far in this site. Due to the research, a new interesting problem in Bashkir Uraus archeology came up. Having a large number of copper sandstones and mines, developed in the Late Bronze Age (Kargaly mines), we got an interesting result: the export of ore from northern Tien Shan. As a result, deposits of copper sandstone of Upper Permian red color formations in Southern Urals from Kargaly mines to Ural River in the area of 16378 square km were examined. Paleo-genetic studies have identified several groups in Kazburun archaeological micro-district. Probably in the late Bronze Age the ore came with population of Androvoevkaya (Askalukskaya) culture of South-Eastern Kazakhstan. This confirms the theory of E. Chernykh about the unity of West-Asian Metallurgical Province.

Keywords: technology, geography, networks, trade, exchange, distance, archaeology, metallurgy, Bronze Age, West-Asian, Bashkir Ural, Kargaly, Kazburun, Copper, ingots, waste products, casting, welding, bronze, network dynamics.
BLURRED BORDERS? MAKING POTTERY AND CULTURAL INTERACTION IN NEOLITHIC AND ENEOLITHIC EUROPE

Friday, 2 September 2016, 09:00-16:00
Faculty of Philosophy, Room 307

Author - Syntani, Michela, The British Museum, London, United Kingdom (Presenting author)
Co-author(s) - Hofmann, Christian, Albert-Ludwigs-Universität zu Freiburg, Institut für Vor- und Frühgeschichte, Kiel, Germany
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Keywords: ceramics, cultural interaction, Neolithic and Eneolithic Europe

Presentation Preference: Workshop

Pottery’s unlimited potential to express variation in style has revealed a complex mosaic of regional traditions across prehistoric Europe, which archaeologists have used to differentiate material cultures geographically and to build chronological sequences. The Neolithic and Copper Ages are understood primarily through analysis of ceramic ornamentation. One outcome is that we may also identify assemblages that are recognisably mixed, when characteristic artefacts of more than one material culture co-occur simultaneously.

This session brings together examples of culturally mixed Neolithic and Eneolithic assemblages from throughout Europe, to map their occurrence and discuss how they are interpreted, and what opportunities and difficulties arise when studying mixed assemblages. Issues such as trade, imitation, migration and conflict arise, but also national research traditions. For example, are mixed assemblages studied primarily to support chronological correlates, to investigate long-distance movements of people or materials, or, using historic or ethnographic analogies of cultural interaction, to study dynamics of cultural integration and differentiation? What are the common features of mixed assemblages? Do they represent ephemeral or ongoing contacts between cultures? Does one culture eventually replace the other, or does hybridisation emerge? Can we study interaction between locals and outsiders in order to understand the causes of differentiation? What are the common features of mixed assemblages? Do they represent ephemeral or ongoing contacts between cultures? Does one culture eventually replace the other, or does hybridisation emerge? Can we study interaction between locals and outsiders in order to understand the causes of differentiation?

The research presented here focuses on the following issues: 1) identification of areas in the Middle Povolzhye and Prikamye with early pottery traditions, 2) establishing chronological frameworks using radiocarbon dating of pottery, 3) definition of the relations between the Neolithic cultural groups of Volga-Kama. The methods used to achieve these objectives are: 1) morphological grouping of pottery based on the ornamentation technique, 2) radiocarbon dating, and 3) technological analysis of pottery (Bolbrink, 1999). The study of the ancient Volga-Kama pottery revealed areas with two types of pottery raw materials: silty clay rich in sand in the Middle Povolzhye and plastic clay tempered with chamotte in the Prikamye region (Bykovov, Vasilyeva, 2013). Flat-bottomed pricked pottery is present in the Middle Povolzhye in the early Neolithic period (5500 cal BC). It is all made of silty clay when still plastic. The proportion of local pricked pottery made of clay and chamotte increases to 15%. Kama comb-ornamented pottery made of clay tempered with chamotte does not exceed 10% further to the west (Maryinoye Povolzhye, Primokshanye, and Posuye). The rest of the ceramics were made of silty clays. This recipe (clay and silt?) is typical for the pricked pottery from the forest-steppe of the Middle Povolzhye.

The Neolithic Volga-Kama pottery as a source of reconstruction of cultural interactions

Author - Prof. Vybornov, Aleksandr; Samara State Teachers Training University, Samara, Russian Federation (Presenting author)
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Keywords: pottery, technological analysis, Volga

Presentation Preference: Oral

The Neolithic and Copper Age pottery of Alto Ribatejo, Portugal

Author - Stojanovski, Darko, University of Trakia-monts et Alto Douro, Stip, Macedonia (Presenting author)
Co-author(s) - Osstebeek, Luiz, Instituto Politécnico de Tomar, Tomar, Portugal
Co-author(s) - Cruz, Ana, Instituto Politécnico de Tomar, Tomar, Portugal

Keywords: ceramics, cultural interaction, Neolithic and Eneolithic Europe

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Keywords: Neolithic, pottery, variability
Presentation Preference - Oral

The Natádó and Zékeré are two nearby rivers in the Alto Ribatejo region, in the hinterland of Central Portugal. The Natádó is a tributary to the Tagus River, and not far from their meeting point where they enter into the Tagus River. Despite their proximity, they are passing geologically different landscapes: while the Natádó is cutting through limestone hills, the Zékeré 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 Natádó 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 Zékeré valley are associated with the archaeological amalgam of Alentejo and the Iberian interior, marked by the Bolsaquie 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 Natádó and Anta 1 de Val da Laje from Zékeré. The first is a burial cave, dated at the transition from early to middle Neolithic, and the later is a Chalcolithic dolmen, suspected of being built over more ancient remains. Through pottery characterisation, an attempt is made to answer questions concerning stratigraphy and intra-site variability, but also regional communications and mutual influences. In addition, organic residue analysis offers a functional and social dimension to the role of pottery in the activities taking place in these two sites.

TH6-03 Abstract 05
Mixed assemblages and social relations in the Neolithic transitional period of the Central Balkans
Author - Dr. Vuković, Jasna, Faculty of Philosophy, Belgrade, Serbia (Presenting author)
Keywords: pottery, Starčevo, Vinča, technological tradition, hybrids
Presentation Preference - Oral

The transitional period from the Early to the Late Neolithic of the Central Balkans is characterized by the presence of mixed ceramic assemblages on several archaeological sites. Mixed assemblages (not only pottery, but also so-called cult objects - altars and figurines), consist of the specimens typical both to the Starčevo and Vinča technological traditions. However, another very important features occur in these assemblages: hybrids and the presence of carefully, refined finished products. The paper focuses on social aspects of these phenomena: do they suggest mixing of people with different group identities? Do the differences in the style of the ceramic assemblages correlate with the different groups? Do they represent mixing of different cultural traditions within the community? Further, we suggest that these situations should be interpreted as a social context and not simply as a result of the mixing of different culture traditions. The ceramic materials, paste recipes in the Paris Basin

Keywords: ceramics, Neolithic, petrology
Presentation Preference - Oral

For a few years, archaeological investigations on temper and ceramic raw materials procurement and processing have been developed for the Middle Neolithic (4600-3800 B.C.), showing a certain diversity in the north of France. My PhD work aims at developing this research dynamic by studying 15 middle Neolithic sites, most of them are located in the Paris Basin. The mid-fifth millennium BC in the Paris Basin is a period of major sociological changes. The demographic trends are pushing population to occupy all kinds of landscapes. Territories are organised through large enclosures that have various functions. Monumental tombs can also be observed in the funerary practices. This demographic dynamism gave an enhancement to agricultural practices as well as cultural diversity. Indeed, several cultural groups developed for a millennium. Roessen and Cerny cultures are identified for the beginning of this period followed by Chassenel, Michelberg, Groupe de Noyen and Groupe de Spure cultures. The use of organic tempers (bones and plants) during early Middle Neolithic in Roessen and Cerny cultures has long contributed with a main use of grog and flint tempers as can be seen later in time. However, current researches consolidated by petrographic analyses show an increase in the use of organic temper and their locations. Those preliminary results might question some criteria used to define the various Middle Neolithic cultural groups in the Paris Basin. Further investigations will mainly focus on tools and techniques involved in ceramic raw materials processing.

TH6-03 Abstract 06
Cultural and technical identities through Middle Neolithic paste recipes in the Paris Basin
Author - Baray, Miklós, University Paris 1 Pantheon-Sorbonne, Nantier cedex, France (Presenting author)
Co-author(s) - Fronteu, Gilles, Gegenaa, Reims, France

Keywords: ceramics, Neolithic, petrology
Presentation Preference - Oral

The mid-fifth millennium BC in the Paris Basin is a period of major sociological changes. The demographic trends are pushing population to occupy all kinds of landscapes. Territories are organised through large enclosures that have various functions. Monumental tombs can also be observed in the funerary practices. This demographic dynamism gave an enhancement to agricultural practices as well as cultural diversity. Indeed, several cultural groups developed for a millennium. Roessen and Cerny cultures are identified for the beginning of this period followed by Chassenel, Michelberg, Groupe de Noyen and Groupe de Spure cultures. The use of organic tempers (bones and plants) during early Middle Neolithic in Roessen and Cerny cultures has long contributed with a main use of grog and flint tempers as can be seen later in time. However, current researches consolidated by petrographic analyses show an increase in the use of organic temper and their locations. Those preliminary results might question some criteria used to define the various Middle Neolithic cultural groups in the Paris Basin. Further investigations will mainly focus on tools and techniques involved in ceramic raw materials processing.

TH6-03 Abstract 07
Fuzzy Boundaries, Permeable Borders: challenges in the interpretation of ceramic assemblages
Author - Silva, Teresa, Democritus University of Thrace, Thessaloniki, Greece (Presenting author)
Co-author(s) - Uren-Kotsios, D., Democritus University of Thrace, Greece
Co-author(s) - Kotsios, K., Aristotle University of Thessaloniki, 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 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 04
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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Keywords: 6th millennium BC, pottery styles, Transdanubia
Presentation Preference - Oral

Southern Transdanubia in western Hungary is a region that served as a transitory area between the Balkans and Central Europe during the 6th millennium BC. Current scientific analyses of the research team focus on four broadly contemporaneous sites in three different microregions. Balatonaraszó-Kis-erdélyi lies on the southern shore of Lake Balaton, while Tolná-Móz is located at a distance of 80 km to the southeast closed to the right bank of the Danube. Szederkény-Kukorica-dűlő and Versend-Gőlnicza has been discovered 50 km further to the south, located only a few km from each other. The evidence of original buildings are similar, they represent the timber-framed architecture of the Linearbandkeramik culture. The ceramic materials, however, show considerable differences.

The pottery from Balatonaraszó can be described as an assemblage that reflects the formerly recorded Transdanubian LBK characteristics. There are many more detectable Starčevo and Vinča traits along LBK elements present at Tolná-Móz and Versend-Gőlnicza. In contrast, the vast majority of the pottery material from Szederkény can be hardly distinguished from the early Vinča ceramic style, but Rábátstyle pottery – probably the earliest manifestation of the Borosty culture – is also present in a separate part of the settlement.

According to the analysed settlements, an abundance of spatial variations of coevally existing pottery styles has been observed both on household and intrasite levels. Facing the problem of entangled assemblages, when different pottery styles coexisted in the material of various contemporary house-holds of the same settlement, the asymmetry 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 microrregional patterns. Attention must be payed to this mosaic nature of the contact zone and to the stylistic variability hereby 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 Neolithic-early Eneolithic
Author - Stefan, Cristian Eduard, "Vasile Parnan" Institute of Archaeology, Bucharest, Romania (Presenting author)
Keywords: Neolithic-early Eneolithic, pottery, Romania
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 unattended 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 the Balkans. However, recent research indicates that these cultural borders and material features are not so rigid and often much more stretched beyond the proposed geographical frames. The concept of culture itself is questioned and often reconsidered with the issue of identity, as more evidence is available concerning the Neolithic societies, their villages, pottery, tools, images, burials and human remains.

Since the first definition of Neolithic cultures some regions were regarded 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 its development. The case-study of the Neolithic pottery in Pelagonia and its production within the agricultural communities of the Skopje valley, Lake Ohrid basin, Ohrid-Pote and Polig, will be presented. Late Neolithic Vinca 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. This paper will mainly consider pottery design and human representations in order to emphasise the common Neolithic features of the isolated regions and the modes of networks which integrated shared identities of distant societies.

The issue of culture will also be discussed as it often invokes a contemporary notion of communities that inhabited particular geographical areas. Their intensive communication and common material culture go beyond the archaeological cultural frameworks of the Balkans and as such will be emphasised for further revision.

TH6-03 Abstract 09
Hybrid Societies: the vagnness of Neolithic 'cultures' in the Balkans
Author - Dr. Naumov, Gozo, Museum of Macedonia, Skopje, Macedonia (Presenting author)
Keywords: Balkans, house models, pottery
Presentation Preference - Oral

The case-study of the Neolithic pottery in Pelagonia and its production within the agricultural communities of the Skopje valley, Lake Ohrid basin, Ohrid-Pote and Polig, will be presented. Late Neolithic Vinca pottery will also be considered, as some of the temper types and design features appear at earlier tell sites in Pelagonia. In addition, the anthropomorphic house models from this area will be discussed. Originally, these were attributed by archaeologists to different cultures due to their typological variations in these regions. Therefore this paper will mainly consider pottery design and human representations in order to emphasise the common Neolithic features of the isolated regions and the modes of networks which integrated shared identities of distant societies.

The issue of culture will also be discussed as it often invokes a contemporary notion of communities that inhabited particular geographical areas. Their intensive communication and common material culture go beyond the 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 - Gabrielli, Eva, Milano, Italy (Presenting author)
Keywords: communities of practice, interaction spheres, technological transfer
Presentation Preference - Oral

Several Late Neolithic and Early Chalcolithic Levantine assemblages (6th-5th millennia cal BC) contain pottery identified as Halaf and/or Ubaid. In most cases, these ceramics are not very similar stylistically or formally to the ‘classic’ Mesopotamian specimens, and the Levant is in fact considered to lie outside the area where Halaf and Ubaid ceramic traditions emerged. More interestingly, however, the Levant is located on the periphery of both Halaf and Ubaid horizons or interaction spheres. Here, like in other peripheral regions, pottery is one of the few elements that, 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 emphasize 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 network.

The uneven distribution and networking of traits affect 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, the Levantine autochthonous traditions, its spread surely involved technological transfers. Interregional contacts, thus, appear to have structured potting activities within the Levantine communities, contributing to the establishment of extended communities of practice.

Focusing on pottery manufacturing, based on old and recent data, this paper seeks to better understand the interaction dynamics implicated in the diffusion of Halaf and Ubaid traits at the boundaries of their respective interaction spheres, in order to further explore the global character and meaning of Halaf and Ubaid phenomena.

TH6-03 Abstract 11
The Comb/Narva interface in the E. Baltic: pottery form and function in the dynamic 4th mill. BC
Author - Dr. Bērzi, Valdis, 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 wheeland 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, as well as the role that ceramics may have played in the social organisation of the communities involved.

TH6-03 Abstract 12
A Technological Study of Pottery from the Archaeological Site Gradiste-Iđoš in Serbian Banat
Author - Miljkovic, Neda, Intermunicipal Institute for Protection of Cultural Monuments Subotica Serbia, Subotica, Serbia (Presenting author)
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Keywords: Neolithic, pottery technology, Iđoš, 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 archaeoanalytical research (BORDERLAND: ARISSE 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 “Tisza” and “Vinča” style pottery. The expansion of Tisza-material culture from the core area of its development in the middle portion of River Tisza 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 Idjoš revealed that materials characterised by both “Tsaz” and “Vinča” styles could be found in the same contexts, for example in the house excavated in 1954 in Gradilice Idjoš. Therefore, Idjoš 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 and microscopic examinations, thin section petrography, portable X-ray fluorescence and FTIR analysis), we aim to shed light on different aspects of pottery production at the site during the Late Neolithic, in order to understand if these different pottery styles could be connected to different chaînes opératoires and could reflect different or changing strategies 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 Idjoš, or if they are the expression of exchange of ideas and communication among communities characterised by different material cultures.

**TH6-03 Abstract 13**

**Mixed Vinča and Tisza assemblages of the Borjōš-Plain, Voivodina:** Contextualisation and technology

**Author:** Dr. Hofmann, Robert, Kiel University, Kiel, Germany (Presenting author)

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**Keywords:** mixed assemblages, Neolithic Vojvodina, pottery analysis

**Presentation Preference:** Oral

During the Neolithic, due to their geographical position, Vojvodina and Banat formed a contact zone between several cultural zones of the Late Neolithic of the Carpathian and Transylvanian Uplands. 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 Neolithic settlements and a loess plain with a size of 1 km² which is situated close to the town of Novi Bečej.

To understand the socio-economic implications of this and similar phenomena, we are contextualising artefactual material, 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 and chronological analyses. Geochemical and mineralogical analyses contribute to answering the questions of how pottery production in these sites was organised and how this pottery was linked technologically to the core regions of the cultural groups involved.

**TH6-03 Abstract 14**

**Technology of Neolithic-Eneolithic ceramics in the territory of Novo-Ladoga basin (NW Russia)**

**Author:** Dr. Kulikova, Marianna, Herzen State University, St. Petersburg, Russian Federation (Presenting author)

**Co-author(s):** Gusentsova, Tatiana, North-Western Research Institute of Cultural and Natural Heritage, St. Petersburg, Russian Federation

**Co-author(s):** Kulikov, Alexander, St. Petersburg State University, St. Petersburg, Russian Federation

**Keywords:** Okhta 1, Podolie 1 sites, Neva-Ladoga basin, petrography, XRF, microtomography of ceramics, technology, Neolithic-Eneolithic pottery

**Presentation Preference:** Oral

There are unique Neolithic-Eneolithic sites in the territory of the Neva-Ladoga basin (NW Russia). The site of Okhta 1 is located at the mouth of Okhta River in St. Petersburg city region. The first people occupied this territory around 4200 BC. These were the first communities of the Neolithic Pit-Comb culture. Changes in the landscape and climatic conditions around 3200-3000 BC made this area attractive for habitation, in particular, in the coastal zone the houses, fishing constructions, and settlements. The archaeological and paleo-environmental data from the Okhta 1 site established. Research on ceramic has expanded our knowledge of cultural traditions and chronology of the ancient societies that occupied the Prinsievskaya lowland territory during 5000-3000 BC.

**TH6-03 Abstract 15**

**Corded Ware Culture in the North-West of Russia: mix of traditions**

**Author:** Tkach, Evgenia, Institute for the History of Material Culture RAS, Saint Petersburg, Russia (Presenting author)

**Keywords:** Corded Ware Cultures, migrations, traditions

**Presentation Preference:** Oral

There are a lot of settlements in the North-West Russia with Corded Ware Cultures (CWC) materials. They appear in the 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 mill. BC on the pile-dwelling settlement Usvatskaia-H (Petrov region). I want to describe the settlement – layer a settlement Seryeya II. This is settlement on the minor bank near the river. Ceramics introduce a different traditions: local, Usvatskiy, and indigenous, CWC. We could trace them in technology of making pottery (the way of using vessels, admixture in the molding dough), in pottery forms and in ornamentation. For example, admixture of gruss was never used in Usvatskiy culture, but on the vessels set cord ornamentation this is a main additive. On the other hand, technology of “blade and anvil” was wide spread in Usvatskiy culture, but in the CWC materials on the settlement this technique was found only a few times. Cord ornamentation was never used in the North-West Russia until the end of Neolithic. This tradition came with CWC inhabitants in the end of III mill. BC. More interesting, that in couple vessels we see the mix of different traditions: ceramic was formed by using slabs, ornamentation represents a horizontal lines of Z-twisted cord and as admixture in the molding dough was used gruss. Possible, that overseers (CWC inhabitants) were mixed with local inhabitants and we trace now some new archaeological tradition, new archaeological culture.

**TH6-03 Abstract 16**

**Making pottery on the Neolithic settlements in the north of the Sozh river basin (Eastern Belarus)**

**Author:** Tkachova, Mariya, Institute of History NAS of Belarus, Minsk, Belarus (Presenting author)

**Keywords:** technology, Neolithic pottery, Upper Dnieper culture

**Presentation Preference:** Poster

This study is based on the ceramic material from the main Neolithic sites of the north of the Balarsian Pospołtchina (Eastern Belarus). The oldest one is Rudnya 1 and Stary Dziedzin 4. In the course of excavations multi-period materials were obtained, but Neolithic finds dominate.

The Rudnya 3 settlement is situated on the first terrace of the left bank of the Sozh River. The site was discovered by V. Trepilov in 1974. In 1975 A. Kolesov excavated here an area of 140 m². The presented poster discusses the results of the study of 1612 Neolithic potsherds from more than 100 vessels. The Rudnya 1 settlement is situated on the first terrace of the left bank of the Sozh River (Eastern Balars). The site was discovered by V. Kopylin in 1994. In 2007-2008 A. Kolesov excavated here an area of 300 m². The presented poster discusses the results of study of 2042 Neolithic potsherds from more than 100 vessels. The Stary Dziedzin 4 settlement is situated on the first terrace of the left bank of the Oster River. The site was discovered by A. Kolesov in 2006. In 2008, 2010 and 2012 A. Kolesov excavated here an area of 232 m². The results of the study of 182 Neolithic potsherds from more than 80 vessels will be presented. Ceramic material is classified following these 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 Balarsian Pospołtchina region during the Neolithic period.

Group 1 is represented by slightly shaped vessels with inverted upper part and slightly bent rim. The vessels were tempered with organic and coarse-grained crushed stone. The dominant ornamental element is called “tapa”. Ornamentation is dense – with closely spaced rows of prints. These types of ceramics are similar to those from the sites of the Dziedzin River basin.

Group 2 is represented by vessels with shoulder, wide neck, narrowed upper part and slightly bent rim. These vessels have complex zonal ornamentation; elements of decoration are varied. This group represents the last phase of the Upper Dnieper culture. In addition the pottery features with the Pit-Comb Ware culture and the Middle Dnieper culture is also found at the site.

The results of the analysis indicate the presence of several traditions in the pottery making on the Neolithic settlements in the north of the Sozh river basin. Location of these sites in the upstream of the Sozh River and their proximity to the area of Dziedzin culture has played a key role in the formation of these traditions.
TH6-03 Abstract 17

Sub-Neolithic pottery from the territory of Belarusian Pabuzha

Author: Tai, N., Institute of History NAS of Belarus, Minsk, Belarus (Presenting author)
Keywords: technologie, Neolithic pottery, the Prypiaj-Neman culture
Presentation Preference - Poster

Investigations of the last decade significantly increased the resource base for the study of the Neolithic of Belarusian Pabuzha (Belarusian part of the Bug River basin). During recent excavations Sub-Neolithic pottery was found at 19 sites in the region. For the first time pottery of the Dubiia culture type was discovered in the region. This fact gives the possibility of defining more exactly the area of the Prypiaj-Neman culture. Some finds attributed to the Sokolovskoe pottery type were also found. The latter type is most probably a result of a local development of the Dubiia culture pottery in the western part of Prypiaj-Neman culture area. Neaman culture is represented by pottery of Lysaja Hara and Dobry Bor types. The finds which belong to the former are not numerous. It may be remotely connected to the main area of its distribution (upper reaches of the Neman River). The Dobry Bor type pottery is much more frequent. It was found at most of the studied sites. It can be divided into two groups: the first one is represented by hybrid pottery with features of both Lysaja Hara and Dobry Bor types. Analogies to such pottery can be found in the Upper Prypiaj River basin. The second group consists of “classic” Dobry Bor pottery.

TH6-03 Abstract 18

Crkvice-Bukovlje: Identifying Copper Age pottery from disturbed stratigraphy

Author: MA Čišaj, Lea, Croatian Conservation Institute, Zagreb, Croatia (Presenting author)
Co-author(s): Poslovč, Hrvoje, Croatian Geological Survey, Zagreb, Croatia
Keywords: Copper Age, Croatia, Lasinja culture
Presentation Preference - Poster

The site Crkvice-Bukovlje in central Croatia has been systematically excavated since 2012. Primarily it was recognised as a Late Antique site dating to the 5th and 6th centuries AD. During the archaeological excavations prehistoric layers from the Iron and Copper Age were also found. Due to the erosion and later occupancy of the site, the oldest Copper Age layers were severely disturbed. Hence, the affiliation of pottery finds is based on their ornamentation, shape and technology. Although most of the finds could be ascribed to the Lasinja culture, there are some pieces that show traits of the Rez-Gajary culture. The appearance of pottery belonging to these two cultures is known from several sites in Croatia, Slovenia and Austria. Sometimes they are found together in the same layers and sometimes Lasinja culture pottery is found in layers beneath the ones with pottery ascribed to the Rez-Gajary culture. New radiocarbon dated assemblages have brought some new insights regarding some of the ornamentation that was previously connected to the late phase of Lasinja culture, supposedly influenced by Rez-Gajary culture.

The question raised is whether we can suppose the presence of Rez-Gajary culture or its influence at the site Crkvice-Bukovlje based on several ornaments that are usually ascribed to Rez-Gajary culture or are we dealing with Lasinja culture pottery and these ornaments appear regardless of Retz-Gajary culture? Clay pastes of Lasinja culture pottery and pottery with Rez-Gajary traits will also be analysed in order to see if there are any differences between them.

TH6-03 Abstract 19

Neolithic pottery from Ljubic cave (Istria, Croatia)

Author: Percan, Tihomir, Croatian Conservation Institute, Svetvincenat, Croatia (Presenting author)
Keywords: analysis, decoration, Neolithic, pottery
Presentation Preference - Poster

Due to its exceptional geographical position on the crossroads of ancient paths, the Istrian peninsula was an important link between east, west, north and south ever since prehistoric times. The Ljubic 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 Museum of Anthropology prehistorique de Monaco (Principality of Monaco) and The Croatian Conservation Institute (Croatia). Recorded findings, particularly ones from the Neolithic period, implied that the cave was intensively in use during this period. A large number of pottery fragments were nicely decorated with different motives and ornaments characteristic of the cultural phenomena from Early (Impressed culture), Middle (Danilo culture) and Late (Hvar culture) Neolithic therefore making it the period of the most intense usage of the cave. With this poster we will put the focus on the Middle Neolithic (Danilo culture) pottery and its ornaments (S shaped decoration, different spiral motifs, incrustation). Furthermore, laboratory analyses of pottery and ornaments show the significance of this multidisciplinary approach to archaeology and pottery. With these kinds of experiments, interesting results were collected. This work would not be possible without good cooperation between archaeologists and the laboratory where the analyses were held (Metris, Pula, Croatia). We also emphasise the significance of the modern scientific technology and methods to improve and advance knowledge connected to technology and production of pottery during the archaeological periods.

TH6-03 Abstract 20

Vessels with diverse lives: examples of decorated pottery with a change of function

Author: Sebek, Katalin, Institute of Archaeological Sciences of the Eötvös Loránd University, Budapest, Hungary (Presenting author)
Keywords: ceramics, cultural interaction, Late Neolithic
Presentation Preference - Poster

Sometimes typology is a last resort for the 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 Poljči-Csázhalom and Puštatastakony-Ledence show how the background concept and/or social function of certain vessel types might be understood, and how a change of these cognitive elements in the case of occasional examples, when affecting appearance or the circumstances of deposition/disposal, might be detected.
TH6-04 Abstract 01

Ireland and its medieval diasporic communities

Author - Ø Næslund, 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 immigrant diasporic communities, Ireland has had a long and complex history of internal and external migrant communities. In fact, the main strands of the nationalist mythos formulated during the floruit of Nationalism were constructed in the context of – and often in contradistinction to – the outcomes of these episodes of migratory activity. While recourse will occasionally be made to sixteenth/seventeenth-century migratory and colonial activity, this paper will mainly compare and contrast two medieval case studies: the arrival of settlers from geographically distant 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 colonising, seen here as a particular form of predatory migration, at least in terms of the intentions of the initial migrants.

Before assessing the outcomes of each episode, it is first necessary to determine the extent of the associated migratory activity by recourse to a combination of material settlement evidence, documentary sources, the toponymic record and the evidence of material culture. Following this, using the same sources of evidence, an assessment will be made of number of immigrant identities through papers dealing with all kinds of material, whether rooted in diasporic 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 02

Jugs and pots - beer and stew? “Hanseatic “impact on medieval and early modern Bergen (Norway)

Author - Dr. Rosén, Christina, Arkeologerna SHMM, Töllsjö, Sweden (Presenting author)

Keywords: Diaspora, Migration, Urbanity

Presentation Preference - Oral

The Early Modern period (c. 1450-1650) was a time of transformation in the Early Modern cities. Increasing Early modern migration into Scandinavia from the Netherlands, present Germany and the UK meant an influx of people, objects and ideas that profoundly transformed the cities, where the immigrants settled and formed diaspora communities with strong commercial and family ties to their homelands. The formation of such communities in established cities gave rise to series of reactions from the hostlands: Some meetings were peaceful; others were conflict-ridden. The migrants came with different agendas: conquerors and colonizers, traders, economic, politic and religious refugees had their own agendas and aims, each of them influencing the interaction within the communities and between the communities and the local inhabitants. And they were met with different responses ranging from official welcomes to conflict and resistance. The urban Diaspora project is an ongoing cross-disciplinary and cross-national research project on immigration into medieval and early modern Scandinavia. In the course of the project our participants has uncovered traces of migration based in archaeology, history and science. All the projects in its final phase The aim of this paper is to present the research framework and some results of the project, concentrating on the agendas of the many immigrant groups, that settled here, and the official and unofficial responses of hostland to the pressure of the immigrants. The Urban Diaspora is funded by the Danish Council for Independent research/Humanities.

TH6-04 Abstract 03

Urban Diaspora - Entangled diaspora communities in Early Modern Scandinavia

Author - Dr. Linaa, Jette, Mosegaard Museum, Odder, Denmark (Presenting author)

Keywords: Migration, Urbanity

Presentation Preference - Oral

The Early Modern period (c. 1450-1650) was a time of transformation in the Early Modern cities. Increasing Early modern migration into Scandinavia from the Netherlands, present Germany and the UK meant an influx of people, objects and ideas that profoundly transformed the cities, where the immigrants settled and formed diaspora communities with strong commercial and family ties to their homelands. The formation of such communities in established cities gave rise to series of reactions from the hostlands: Some meetings were peaceful; others were conflict-ridden. The migrants came with different agendas: conquerors and colonizers, traders, economic, politic and religious refugees had their own agendas and aims, each of them influencing the interaction within the communities and between the communities and the local inhabitants. And they were met with different responses ranging from official welcomes to conflict and resistance. The urban Diaspora project is an ongoing cross-disciplinary and cross-national research project on immigration into medieval and early modern Scandinavia. In the course of the project our participants has uncovered traces of migration based in archaeology, history and science. All the projects in its final phase The aim of this paper is to present the research framework and some results of the project, concentrating on the agendas of the many immigrant groups, that settled here, and the official and unofficial responses of hostland to the pressure of the immigrants. The Urban Diaspora is funded by the Danish Council for Independent research/Humanities.

TH6-04 Abstract 04

Migration in Early Modern Scandinavian towns. The Nya Lôtöse case

Author - Dr. Rosén, Christina, Arkeologerna SHMM, Töllsjö, Sweden (Presenting author)

Keywords: Early Modern, Migration, Scandinavia

Presentation Preference - Oral

The town Nya Lôtöse existed between 1473 and 1624 on the west coast of Sweden. The written sources from the town are sparse and cover only the last decades of its existence. In this paper I will discuss strategies for identifying immigrant households from the archaeological record with emphasis on how to distinguish between diaspora identities and other overlapping identities such as occupation, social and economic status.

TH6-04 Abstract 05

The materiality of diaspora communities in the medieval and early modern world

Author - Dr. Linaa, Jette, Mosegaard Museum, Odder, Denmark (Presenting author)

Keywords: Early Modern, Materiality, Migration

Presentation Preference - Regular session

Migration is a hot topic, but not a new one: Diaspora communities are well-known in the medieval and early modern past. The question is if the otherwise of the migrants was as a hindrance or a resource in their new life. In this session we aim to take on this question by approaching links between individual identity, community and host- and homelands.

The session brings together three research areas: the study of migration, urban development, and the study of the formation and expression of group- and individual identity through materiality. The examples are many: The medieval Hanseatic migration was followed by refugees and ethnic migrants in Europe and beyond from the 16th century onwards, and the migrants were entangled in complicated networks of marriage, kinship and business relations in host- and homelands. This entanglement gives rise to series of core questions in the interpretation of the archaeological record. 1. How do we identify immigrant identities? 2. How do we assess social or other differences within the immigrant community? 3. How do we assess reactions of the host land to the immigrants? 4. How do we separate diasporic identities from those of overlapping communities cutting across ethnicity, e.g. occupation, social and economic status, age, gender and race.

The session takes its starting point from the ongoing Danish-Swedish research council project Urban Diaspora, that focus on Scottish, German and Dutch diasporic communities in Scandinavian cities. Urban Diaspora is based on the materiality of consumption reflected primarily in ceramics, eco/zoofacts and written records, but we invite speakers to give their perspectives on immigrant identities through papers dealing with all kinds of material, whether rooted in diasporic 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 05
Early Modern Immigrants: The City of New Lödöse in the Historical records

Author: PhD Larson, Daniel, University of Gothenburg, Göteborg, Sweden (Presenting author)
Keywords: Early Modern, Immigrants, New Lödöse
Presentation Preference - Oral

The city of New Lödöse was established in 1473 as a gateway for trade between Sweden and Western Europe. About 150 years later, in the early 1620s, the city lost its privileges, and the citizens were forced to move closer to the sea, so what is now modern-day Gothenburg. In the research project Urban Diaspora – Diaspora communities and materiality in early modern urban centers, New Lödöse is defined as an "immigrant city", while the other two cities in the project, Elsinore and Aalborg, are classified as a “cosmopolis” and a “provincial city” respectively. The amount of preserved historical records differs for these three cities.

For New Lödöse, no written document has been found that makes it possible to identify owners of excavated plots or to study individual families thoroughly (e.g., marriage strategies, networks, and materiality). On the other hand, the discovery of a number of tax 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, Hjørring, 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 man-made market demand by growth and progress for the town as the king Frederick II rebuilt the castle of Kronborg. Many well established Dutch merchants settled at the sandy area situated between the town of Elsinore and Kronborg Castle. This new town quarter, earlier known as Sanden, i.e. the sands, got an abrupt end due to the Swedish attack in 1658.

Recent archaeological investigations in connection with extensive construction work in this area, which were until recently hidden under the former shipyard area, have revealed remnants of buildings, culture layers, latrines and wells connected to the rich 16th-17th century settlements. The fauna and the botanical remains are also very rich, as a result of 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 SybSør, University of Copenhagen, Copenhagen O, 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 (pA AD 1000-1400) show that the Norse settlers imported European domestic mammals and partly subsisted on these, but that over time the importance of native seals increased, whereas the importance of cattle decreased. Cutmarks etc. on the bones may also provide clues; for example bi-perforated metapodials, mostly of sheep, from the Danish site Ribe (AD 725-850) indicate that bone marrow was obtained this way which seems to be an ancient tradition in Scandinavia which has been exported to England (several sites, 9th-11th centuries AD), where bi-perforated metapodials 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 Selåg Væstby (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 Lödöse

Author: Maltin, Emma, Bohusläns Museum, Gothenburg, Sweden (Presenting author)
Keywords: consumption, ethnicity, fish bones
Presentation Preference - Oral

The present paper deals with the question to what extent ethnic identity can be traced in the archaeozoological remains of food consumption. Within the research project Urban Diaspora – Diaspora communities and materiality in early modern urban centers it was asked whether it was possible to distinguish differences in consumption between plots in the town of Nya Lödöse (1473-1624), Sweden. The town was situated at the Swedish west coast, and was characterized by a multilingual population largely consisting of merchants, soldiers and sailors. From 2013 and onwards comprehensive excavations covering large parts of the town have been conducted. A range of different features have been excavated, from houses and backyards to streets and refuse pits. The clearly defined plots form a unique possibility to map differences in food consumption between households, and possibly connect the variation with the identity of the plot owner, eg. ethnicity, status or class.

Archaeological features clearly connected to the consumption in five town plots were selected, and special attention was given to the fish bone assemblage. The names of the plot owners are not known through written sources. It was apparent early on that there did exist interesting differences, especially regarding the distribution of species. Anatomical distribution and size were also investigated. The challenge lies, as always, in explaining the differences found. Are they due to the resident’s birthplace, social class or personal taste, only to mention a few possibilities?

TH6-04 Abstract 09
Foreign beer and gruel traditions in late medieval town Nya Lödöse, Sweden

Author: PhD Heimdahl, Jens, National Historical Museums, Hägersten, Sweden (Presenting author)
Keywords: archæobotany, beer, immigrant
Presentation Preference - Oral

Food and beer traditions foreign to the local Swedish west coast have been traced by specific plant material in the late medieval town Nya Lödöse, and may linked the local gourmets of German or Dutch origin. Traces of hop beer brewing from the late 13th century is an anomaly in an area strongly dominated by sweet gale beers as late as mid15th century. Likewise, the use of malted barley stands out as foreign in relation to local tradition. It appears a imported foodstuff not abroad, maybe imported by German or Dutch househoulds for the making of certain traditional dishes – like gruels consumed on specific occasions. The traces of foreign food and beer traditions bear witness of a multi-ethnic town, with populations of traders preserving traditions of their homeland.

TH6-04 Abstract 10
Plant finds and migration in early modern (15th to 17th century) Aalborg

Author: MA Jensen, Peter Mose, Mosegaard Museum, Højbjerg, Denmark (Presenting author)
Keywords: Early Modern, Immigrants, New Lödöse
Presentation Preference - Oral

The Danish town of Aalborg from northern Jutland is known historically to have contained a number of immigrants in early modern times, mainly coming from the Netherlands. The perspective of the presentation will be to discuss the possibilities of observing signs of migration in analyzed plant material from the town.

The basis for the discussion is a number of recent archaeobotanical analyses dating from around 1400 A.D. until the late 17th century from Aalborg. The analyzed samples represent diverse archaeological contexts, ranging from 16th century garden soils or dung layers coming from a monastery and a later hospital area to different latrine samples. One latrine sample of particular note comes from a late 17th century latrine connected to the bishops 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 Atzbach, Rainier, School for Culture and Society, Højbjerg, Denmark (Presenting author)
Keywords: Court Culture, Ethnicity, Postr-medieval Archaeology, Renaissance, Stove Tiles, Immigration
Presentation Preference - Oral

The present paper deals with the question to what extent ethnic identity can be traced in the archaeozoological remains of food consumption. Within the research project Urban Diaspora – Diaspora communities and materiality in early modern urban centers it was asked whether it was possible to distinguish differences in consumption between plots in the town of Nya Lödöse (1473-1624), Sweden. The town was situated at the Swedish west coast, and was characterized by a multilingual population largely consisting of merchants, soldiers and sailors. From 2013 and onwards comprehensive excavations covering large parts of the town have been conducted. A range of different features have been excavated, from houses and backyards to streets and refuse pits. The clearly defined plots form a unique possibility to map differences in food consumption between households, and possibly connect the variation with the identity of the plot owner, eg. ethnicity, status or class.

Archaeological features clearly connected to the consumption in five town plots were selected, and special attention was given to the fish bone assemblage. The names of the plot owners are not known through written sources. It was apparent early on that there did exist interesting differences, especially regarding the distribution of species. Anatomical distribution and size were also investigated. The challenge lies, as always, in explaining the differences found. Are they due to the resident’s birthplace, social class or personal taste, only to mention a few possibilities?
This paper seeks to explore, in how far it is possible to identify common traces or differences between "Danish" and immigrant households in Aalborg and Elseviers during the renaissance. The focus will be put on stove tiles as type of material culture with a solid background of research and many possibilities to identify the origin of fabric, decoration and use. Moreover, the position of a stove in the house and its relationship to the development of dwelling habits will be discussed.

TH6-04 Abstract 12

In the houses of urban strangers?

Author - Historian Jernej Jakob, Danish Centre for Urban History, Aarhus, Denmark (Presenting author)

Keywords: Early modern, Materiality, Migration

Presentation Preference - Oral

House and home form the most important cultural element of human daily life. How we live and how we furnish our homes define who we are and how we would like the outer world to see us. Things were no different in the Danish market town Aalborg in the seventeenth century. By use of the probate records this paper aims to investigate the differences and similarities of the material culture in the 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 Angelica, Brugnu Romania (Presenting author)

Keywords: anthropomorphic graves, medieval colonization, Transylvania

Presentation Preference - Poster

From the mid-12th century, guests from Central Europe, generally known as Teutonic, Flandriens, 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 involved many urban centres in East Central Europe. They also developed a distinctive religious architecture.

Very little is known about the first generations of colonists: written sources (very modest for the entire region during the Middle Ages) are scarce, and existing archaeological evidence is limited. However, one of the most obvious manifestations of these communities’ individuality was of funerary nature. When excavating the lower stratigraphic layers of the cemeteries used by German settlers, archaeologists often find anthropomorphic graves, i.e. dug into yellow clay by following the shape of the human body, with a niche for the head. After this burial custom had been used for nearly a century (1150-1250), it suddenly disappeared.

In recent decades archaeology has brought to light hundreds of such tombs scattered among other burials in Saxon cemeteries. Although it is clear that anthropomorphic tombs represented a specific ritual, not the rule, and that they were only used for certain members of the community and only within certain communities, some questions remain unanswered. Which was the rule? What was the meaning of this ritual within the same community? Why and when did some people prefer an anthropomorphic grave while, others opted for a simple, rectangular grave pit? No satisfactory explanations have been provided to date.

Our paper/poster will introduce this problematic and will also show examples of anthropomorphic brick-laid tombs from the same area. Although their shape is related to the early settlers’ funeral customs, these graves appeared in a topographic and chronological different context. Only a few dozens of such graves dating back to the 13th century are known, always found in archaeological contexts bound to newcomers settled in local, catholic communities.

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

At the 1994 conference of the AFEAF (published in 1996) I gave a short paper suggesting that if we could only get rid of the terms Hallstatt and La Tène we might write a very different narrative of the European Iron Age. At that time I was looking specifically at cases in southern Germany, central France and Britain where ideas of chronological divisions and ‘culture groups’ were getting confused, and mixed with now unacceptable theories on the origin of the Celts and their supposed migrations. Only now is the concept of the ‘culture group’ being replaced with ‘networks’ and I personally have been trying to replace chronological ‘phases’ based on ‘type fossils’ (as originally developed by Reinecke and Dechelette) with ideas of building chronologies on ‘attributes’ and sequences of ‘horizons’ signalled by single innovations or mutations in material culture. The concepts can also be applied to genetics and languages, and so help to re-integrate different disciplines which in recent years have grown apart (e.g. in ‘Celtic Studies’). I will reflect on our nomenclature and whether terms like Hallstatt and La Tène should be abandoned, or can still be used, e.g. to denote styles of pottery, burial rites, etc. It means that we stop trying to construct chronological and cultural boundaries, and it can also affect basic things like the way in which we publish archaeological excavation reports.
Boundaries provide an exciting and dynamic place to be doing archaeology, but they can also be fraught with troubles. Working across national borders often requires realignment of classificatory schemes for both ‘cultural’ groups and their associated material culture. To say a site belongs to “the Iron Age” carries very different meaning to a person in Greece or in France. Even in a space as small as Britain, “the Iron Age” can mean different things when looking at either side of the Anglo-Scottish border. Moving through geographic boundaries, problems are only exacerbated when also faced with a boundary dividing one chronological period from another.

Drawing primarily upon examples from Iron Age Britain, from both sides of the Anglo-Scottish border, from the North to the South, and across the period of Roman contact and conquest, this paper will explore how the development of precise independent chronologies enables archaeologists to negotiate the potential perils in these liminal locations, allowing us to better model and understand social change across space and through time.

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**TH6-05 Abstract 03**

**Strangers at the Feast? Elites, artefacts and exchange in the 1st millennium BC in SE Slovenia**

**Author** - Mason, Philip; Zavod za varstvo kulturne dediščine Slovenije, Center za preventivno arheologijo, Ljubljana, Slovenia (Presenting author)

**Keywords** - Iron Age, Late Bronze Age, Slovenia

**Presentation Preference** - Oral

The paper explores the role of elite contact and competition in the LBA and EIA societies in SE Slovenia in the transmission of artefacts and technologies around the head of the Adriatic in the 1st millennium BC in the light of recent research. Exotic material in both mortuary and settlement contexts reflects changing patterns of elite exchange in the balance, the importance of a N-S route between the Eastern Adriatic and the Eastern Alps on the one hand and a E-W route between North and Central Italy through the head of the Adriatic to Pannonia and the northern Balkan peninsula on the other.

It explores the way in which specific types of exotic artefacts were incorporated into the existing elite or prestige repertoires, connecting local communities to transformed settlement and transformation sphere. This is reflected in adoption of iron technology, new forms of elite expression and the aggrandisement of centres of power that accompanied the transformation of the LBA Ljubljana group and gave rise to the EIA Dolenjška group.

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**TH6-05 Abstract 04**

**Iron Age interaction in the Po river lowlands and in the pre-Alps of the western Veneto (Italy)**

**Author** - MA Saccoccio, Fabio, La Sapienza University of Rome, Roma, Italy (Presenting author)

**Keywords** - borders, Iron Age, Veneto region

**Presentation Preference** - Oral

The western Veneto region is geographically characterized by a landscape that progressively decreases in elevation from the peaks of the pre-Alps to the plain shaped by the Brenta, Adige and Po rivers and tributaries. The western border of Veneto seems to show a long-lasting pattern of interaction between human groups at least since the Final Bronze Age. This long-distance 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 (VIII–V century BC), i.e. the Proto- and Palaeslovenian culture, but they strongly differ in the settlement pattern, showing a marked continuity in the South-Western Plain area, whereas the northern pre-Alps seem to be affected by the wider Final Bronze Age settlement crisis. Finds related to the Trentino-Lucchi/Platten culture are found widely, showing intense supra-regional communication. At the same time, Leonardt proposed (2011) that the pre-Alps hillfort settlements were characterized by power concentration deriving from the control of boundaries. Since this phase, albeit with diverging settlement patterns, the two areas represent the Western and North-Western borders of the Palaeslovenian world.

The VI century BC marks another step in the border interaction in both areas, as significant finds with different origins are recorded in both areas. The central place of Gazzo Veronese, close to the Minio river, records the presence of Etruscan finds - a bronze double axe and 4 funerary statues, one with an inscription - it seems to record a probable presence of high status figures (magistrates?) among the Palaeslovenian community, but probably only for a brief period. Quite different is the case of the northern area where the presence of epigraphic and material culture finds suggests a marked divergent identity pattern from the previous phase, influenced by Rhaetic elements (Fritzen-Sanzeno culture). Leonardt (2011) proposed to recognize in this case a phenomenon of hybridization due to trade contacts between the local (Palaeslovenian) community and the Rhaetic human groups that finally succeed in acquire the cultural and political supremacy.

Both areas, in the IV century BC, appear to be strongly affected by the Celtic-Cenomani invasion that led to a profound change and reorganization of the considered archaeological landscape. Connections between the analyzed areas and the Celtic one, North of Alps, are recorded by finds since the end of VI-V century BC and interpreted by Bondini (2005) as mercenaries controlling the compulsory trade axis in the Pre-Alps belt. During the IV century BC the central place of Gazzo Veronese shows a contraction and a shift in the location of the inhabited area although problematic is still the definition of its ethnicity in this phase. Complex is generally the definition of the Palaeslovenian polity for the IV century BC due to the scarcity of archaeological evidences: only in a subsequent phase the presence of Celtic human groups is recorded in the area near Verona, Oppiano and Mantua leading to a contraction of the Palaeslovenian polity.

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**TH6-05 Abstract 05**

**Iron Age Burial Customs and Cultural Dynamics Between Eastern Alps and Southern Pannonia**

**Author** - Prof. Potrebica, Hrvoje, University of Zagreb, Faculty of Humanities and Social Sciences, Zagreb, Croatia (Presenting author)

**Co-author(s)** - Križ, Borut, Dolenjski Muzej, Novo Mesto, Slovenia

**Keywords** - Burial customs, Kaptol, Lower Carniola

**Presentation Preference** - Oral

The classical approach to the study of this period applied to data distinguished between three phases of identity change during the Iron Age: the Umbrian 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 we should not entirely deny large shift of population, mobility was far greater and more intensive at the level of individuals and small groups than at the level of whole communities. Regardless of the size of mobility, it could cause significant changes in identity of individual communities. Since the link between the burial ritual and the definition of identity of cultural groups in the Early Iron Age is far too often taken for granted, we believe that the issue of identity of the Iron Age cultural groups should be analysed at the level of individual communities. A comparative analysis of contemporary and conceptually similar grave inventories discovered in different grave burial contexts and belonging to different cultural groups show that there are different kinds of identity at the level of a community, cultural group or a wider unit. In the same time we have to pose question is that traditional hierarchical approach to different forms of social identity is justifiable and is there actually any model which could be universally applied.

The results of research of the large necropolis of Kapiteljska Njiva in Lower Carniola carried out in recent years will illustrate the chrono-cultural 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 Umbrian 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 burials and burials in the Kaptol area. The inventories of graves show certain similarities regardless of the fact that burial ritual and local dynamics of cultural change are significantly different in these two areas.

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**TH6-05 Abstract 06**

**ArkeoGIS: a multilingual free online tool to transcendent 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 as a part of a Europe-wide scale. Its efficiency for trans-border archaeological and pale-environmental studies has convinced us to move from version 3 to 4: the latter will offer the possibility to add new languages and chronological systems from summer 2016 onwards. The presentation will also focus on several, now redundant, trans-border problems and explain the solutions that have been chosen by the team of 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. Danielaiova, Alzbeta, Institute of Archaeology CAS, Prague, v.v.i., Prague 1, Czech Republic (Presenting author)
Co-author(s): Bursik, 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 spatial distribution of characteristic coinage or pattern of long distance imports? Can the same material culture harbour different cultural identities, different political, economic or even ethnic entities?

How we understand communities existing under the label of “the La Tène culture”? Who were their neighbours, counterparts and of what nature were their mutual contacts? Did they understand the concept of borders as we understand it nowadays?

Our recent findings show (mostly peaceful) coexistence of the main cultural groups in the transalpine area (especially “Celts” and “Germans”). This is well attested especially along the long distance routes (Amber route, Elbe route), in peripheries of traditionally used lands and at most of the major settlements. The true break seems to come with the later Germanic occupation, when many of the regions around the central European area (Saxony, Lusatia, parts of Bavaria, parts of middle Danube area etc.) remain deserted. However, there exist some evidence of the prevalence of these traditional contacts.

The contribution aims to summarise research development made on the territorial issue of the La Tène culture and its northern (the “Germans”) and southern (the “Romans”) counterparts during the last ten years. We want especially to assess the importance of long distance routes (connecting the Adriatic, Transalpine and Baltic regions) and to point out how contemporary study of these communications with the use of modern methods can change our traditional perspective of the concept of borders of the La Tène world.

TH6-05 Abstract 08
Exchanging rough materials between North and South of Europe at a time of transition

Author: Adj. Prof. Okonomidou, Stavros, Arcadia University Athens, Greece (Presenting author)
Co-author(s): Dr. Okonomou, Artemios, Department of Archaeology, University of Nottingham, N02RF, UK, Nottingham, United Kingdom
Keywords: Baltic Amber, Cultural European “Koine”, Baltic area, North and South of Europe

Paper, Scientific analysis of rough materials

Presentation Preference - Oral

The Baltic area is in the deep North of the European Continent still reachable from southern people already in the Late bronze Age as mythical “Hyperborea” destination. Different types of Baltic amber have been found in different archaeological contexts of many regions of the Mediterranean as proof of the interest on this exotic northern product. The Baltic area, though, is not only a potential “Hyperborean” destination in Late European prehistory, source of exotic rough materials, but it could be the epicenter of early commercial exchanges which forms, for the first time, the vast network of a vast cultural “Koine” between South and North, and protagonist in decisive developments in the interrelations among diverse geographical districts of Europe.

The last decades a variety of analytical methods/techniques has been developed and is applied to the characterization of ancient organic and inorganic materials. The scientific investigation of amber can be proved an important tool in the hands of the archaeologist aiming to identify prehistoric social interaction, trade and exchange networks between ancient civilizations. In this paper the Baltic area will be examined, in its geographical context, with archaeological and scientific data provided.

TH6-05 Abstract 09
Was there any border to cross? Mobility and rejection of the alien in the Iron Age

Author: Dr. Gorgues, Alxeis, University of Bordeaux Montaigne, Pessac Cedex, France (Presenting author)
Keywords: Alterity, Identity, Mobility

Presentation Preference - Oral

Before going any further, the author wishes to warn that this paper is highly speculative. It is based on the observation of an apparent analogy, which Iron Age patterns of mobility appear year after year more complex and varied from one time to another and from one person to another, but always connected different geographical and cultural areas through interpersonal bonds built through many generations. In this context, the construction of identity relied more much more complex than those based solely on ethnicity, embracing kin rivalry, devolution to the consensus social norms, etc. In other word, the detestation of the other was a multiscalar phenomenon, not preeminently related to territorial identity.

One may ask, therefore, what was the relation between violence and alterity. As a conclusion, this paper will address this topic through some specific examples collected all throughout Iron Age Europe, and even on its margins.

TH6-05 Abstract 10
Early/Late Iron Age transition in Southern Pannonia – Crossroads of Identity

Author: Prof. Potrebica, Hrvoje, University of Zagreb, Faculty of Humanities and Social Sciences, Zagreb, Croatia (Presenting author)
Co-author(s): Pracnik, Antinjana, The National Museum of Bosnia and Herzegovina, Sarajevo, Bosnia-Herzegovina
Keywords: Donja Dolina, Early/Late Iron Age Transition, Kapol

Presentation Preference - Oral

This paper will discuss shift of identity that occurred at the Early/Late Iron Age transition in Southern Pannonia. Presentation will focus on the River Sava basin which has been perceived as border in recent centuries. However, at the end of the Early Iron Age, this is the area of dynamic cultural transfer directly related to changes in peripheral cultural networks. This period was a time when local communities reflected on the level of burial customs as well as settlement organisation. During the Early Iron Age, northern Bosnian was dominated by the Donja Dolina – Sinski Most cultural group. Chronologically, the necropolis in Donja Dolina begins in the Late Bronze Age, but the site continued to be used for burials until the end of the La Tène period. Around one quarter of the graves within the necropolis contain incineration burials, mostly belonging to earlier periods, while the majority of graves are flat graves with skeletal burials. The material discovered in graves within the necropolis displays similarities to the neighbouring Iron Age groups in the Balkan hinterlands, but it also corresponds to the ends made in Lower Carniola and even more to those from the Pologe Valley and the entire Kapol Group.

The link between southern Pannonia and Donja Dolina is particularly important during the Late Hallstatt and Early La Tène periods, when some parallels within the material culture indicate that the communities occupying these regions shared a very similar cultural identity. Generally, it would appear that in the middle of the 6th c. B.C. Hallstatt communities in southern Pannonia did not actually disappear, but their identity was radically changed. The most visible reflection of that change can be seen at the level of burial ritual, with the disappearance of incineration burials under tumuli. The few sites dated to this period, such as the well-known graveyards of Berendm and Szentbricik in Hungary, and the graves in Vinkovci, Vukodol, Đal and Belišće in Croatia, indicate that these were smaller, flat, skeletal graveyards. The material discovered in them displays a universal similarity in the entire southern Pannonia, including Donja Dolina and, presumably, the Pologe Valley.

From the point of view of the Early Iron Age, this changes the picture of Late Hallstatt and Early La Tène periods, when some parallels within the material culture indicate that the communities occupying these regions shared a very similar cultural identity.
TH6-05 Abstract 11
Textile Cultures of Iron Age Central and Mediterranean Europe: breaking down the boundaries

Author - Dr. Gisela, Margarita, University of Cambridge, Cambridge, United Kingdom (Presenting author)
Keywords: culture, Iron Age, textiles

Textiles represent a product the design and use of which are subject to cultural patterning and as such they can be used to establish the identity of an individual or a group with respect to other individuals or groups. Worn or displayed in an emblematic way, textiles can denote variations in age, sex, rank, status or group affiliation, thereby creating and reinforcing social and cultural 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 mineralised form have recently been analysed within the scope of the ERC funded project Production and Consumption: Textile Economy and Urbanisation in Mediterranean Europe 1000-500 BCE (PROCON). The data collected from several hundred of such finds suggest that, during the Iron Age, and possibly already much earlier, most of Italy shared the weaving techniques and aesthetics of the Eastern Halstatt, while Greece was much more closely connected with the Near Eastern textile culture. These results suggest that the traditionally perceived cultural boundaries between the Eastern region and the Mediterranean societies, as well as the connections amongst the latter, have to be reconsidered. The paper will review the evidence and suggest some ideas for transcending borders in later prehistoric Europe by using the generally conservative and ubiquitous textile technology to delineate wider cultural and technological spheres of influence.

TH6-05 Abstract 12
Digital approaches to the presentation and analysis of Iron Age art

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Keywords: art, digitisation, Iron Age

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 istula art, classically defined as figurative repoussé decoration applied to sheet bronze objects, such as the eponymous istulae, as well as belt buckles, helmets and occasional other objects. However, both figurative and geometric decoration is also applied to a range of other objects and materials, which are equally important in explorations of the social meaning of Iron Age art in the region. This paper presents a series of case studies based on the digitisation and visualisation of decorated Iron Age objects held in museum collections in Slovenia and Croatia. The aim is to illustrate the potential of specific methods in both the analytical and presentational applications of 3D imaging. The work is a collaboration between ENTRANS, the Fragmented Heritage Project and Bradford Visualisation at the University of Bradford and University College Cork.

TH6-05 Abstract 13
The cremated dead: investigating cremated remains from the Late Bronze Age/Early Iron Age transition

Author - Nicholla, Rebecca, University of Bradford, Bradford, United Kingdom (Presenting author)
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Keywords: Cremation, ENTRANS, Results

The paper presents the results of osteological analysis of cremated bone from the Late Bronze Age and Early Iron Age funerary assemblages of Croatia and central and eastern Slovenia. This doctoral research forms part of the larger HERA-funded ENTRANS Project, examining the Late Bronze Age and Early Iron Age cultural encounter (e.g. heat and degree of burning), selection processes for deposition, and clues as to the condition of the body prior to cremation through the observation of fracture patterns.

In the past the process of cremation and subsequent deposition of human remains has, on occasion, been described as reflecting egalitarian social structures, or even the idea of a ‘poor man’s grave’, especially in comparison with more elaborate Iron Age funerary monuments. The examination of cremated remains from unfilled cemetery sites in modern day Slovenia, and of the large Early Iron Age funerary complex of Kapitol in northern Croatia, has offered an additional level of understanding regarding pre-Historic attitudes to the disposal of the dead.

The investigation seeks to cross boundaries, not only of geographical and chronological terms, but also in regards to strategies. Interpretations draw upon both scientific and more traditional approaches as a means of enriching interpretations of funerary processes in the past.

TH6-05 Abstract 14
Beyond the vessel: residue analysis and the understanding of identity in Early Iron Age Europe

Author - Bastos, Beatriz, University of Bradford, Bradford, United Kingdom (Presenting author)
Keywords: Ceramic vessels, Early Iron Age, Organic residue analysis

During the cooking or storage of foodstuffs, organic residues are deposited, absorbed and preserved within the porous walls of ceramic vessels. With advances in scientific methods, it is possible to extract those organic residues and, through analysis, identify them. Organic residue analysis has the potential to make a significant impact on our understanding of past societies, from their diet to cultural and social practices. The identification of the resources cooked and/or stored in ceramic vessels can provide important information regarding the source and nature of cultural and social changes that took place in later prehistoric Europe. With this in mind, the study of organic residues in pottery was incorporated within the ENTRANS Project, aiming to expand our understanding 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 organic matter from ceramic vessels from Slovenia and Croatia. The principal aims are to explore aspects of diet and the provenance of resources by comparing the results of residue analysis with contextual data, such as faunal and floral remnants. Differences between settlement and funerary sites are considered, by identifying how the vessels were used and the specific residues present within them. This paper also demonstrates how organic residue analysis can show patterns of change and encounters during later prehistory.

TH6-05 Abstract 15
‘Beyond the grave’ with the help of multidetector computed tomography and micro-excavations

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Keywords: cremation burials, micro-excavations, multidetector computed tomography

The urn is the ultimate ‘burial place’ of the cremated remains of an individual. But it is much more than that. The type of vessel, preparation of the contents, possible additional grave goods etc. has by far not only functional but foremost symbolic meanings and values and holds information about the time of the deposition, ‘cultural’ milieu, status of the deceased and much more. The study of a cremation burial is not a straightforward and self-evident process. We have to bear in mind that we are dealing with traces of events and/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 sites. It is also the time of excavations of the graveyard where all the possible details have to be observed and documented; with modern excavation techniques and methodology as well as standardized reporting protocols the results became much more comparable, which is crucial when trying to study wider cultural phenomena, as in this case the burial rite.

However we can go further in our quest for more detailed and reliable data. An important step forward, when dealing with urn graves is the use of multidetector computed tomography indivisibly connected with the micro-excavations of urns. Such research results in an until now unknown variety of new data, not only of the grave itself and its preparation, but also of the post-
depositional processes, which play an important role in the final interpretation of the graves, burial rites etc. It has furthermore shown that we have to shed new light on older published data and sometimes 'traditional' interpretations.

The multidisciplinary computed tomography connected with the micro excavation until now did not make it into the standardized grave research 'tool-box', but it is certainly on the way there.

TH6-05 Abstract 16
Open-minded access to Late Bronze Age societies in southern Carpathian Basin

Author - Loznjak Didier, Daria, Institute of Archaeology, Zagreb, Croatia (Presenting author)
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Keywords: communities, Late Bronze Age, mortuary practice
Presentation Preference - Oral

Late Bronze Age communities in southern Carpathian basin are known through different cultural patterns/cultures/groups. The research project Late Bronze Age mortuary practices and societies in southern Carpathian Basin (MRP-I-7-2013-5327), 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. Observed treatment and disposal of bodies, selection of grave goods and overall deposition, suggest different criteria of which some obviously reflected tradition while others indicate innovations presented by individuals living in these communities. Moving beyond the existing borders, it is possible to see images of the "small worlds" that overlap in the contact networks of practiced customs. Some customs (e.g. cremation of deceased, animal meat as offering of food, and various sets of vessels as containers for food and drink) could be examples of tradition in transitional period from Late Bronze to Early Iron Age in southern Carpathian Basin. Even with the application of open-minded approach, invisible borders still exist, but defined by the people that we investigate, rather than researchers.

TH6-05 Abstract 17
When traditions of pottery making reveal boundaries: a case study from the Upper Rhine Valley

Author - Philippe, Marie, Université de Bourgogne, UMR ArTHES, Strasbourg, France (Presenting author)
Keywords: ceramic technology, Late Bronze Age, social network
Presentation Preference - Poster

Between Vosges and Black Forest mountains, Bronze and Iron Ages (10th-8th century B.C.), modern France and Germany, the context of this study defies borders. In the Upper Rhine Valley, at the end of the Bronze Age, one can a priori hardly expect to reconstruct boundaries because of a standardisation of the material culture, and the point is more about interactions’ significance. During Late Bronze age, the cultural entity “Rhin-Suisse-France Orientale” or “RSFO” (“Rhin- Switzerland-Eastern France”) has a core on the Rhine section between Basel and Karlsruhe. Since the 9th century B.C., this cultural entity dissolves, turning gradually to the Hallstatt one. This paper aims to focus on the people who experienced this transition period, in a supposed "flow corridor". Which communities lived there, standing out and interacting with each other? Does it match with geographical features? Does it change through time?

According to the anthropology of techniques, ceramic shapes opéraîtres, and especially shaping sequences, can vary depending on cultural factors and material constraints. It leads to technical traditions specific to social groups. Social boundaries can thus be defined by the limits of the transmission network of technical traditions. About 50 technical features (for example bottom forming technique, finishing technique applied on the outer surface of the rim…) were analysed on 830 well-preserved potteries, sampled on 19 sites distributed from the south to the north of the valley section. A statistical classification procedure has been developed, based on biological methodology, to model the diversity of technical traditions. It first appears that a technical background is similar on the entire area, with the omnipresence of the coiling technique. However forming methods and sequences are very different and reveal a great variety, which is related to the morphology of the potteries and to their spatial provenance. This distribution indicates that geographical boundaries (like mountains or the Rhine river) do not impact on social boundaries. Moreover, technical traditions go through chronological limits and bring thus a complementarity approach to artefacts’ morphology to understand transition mechanisms.
“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) - Dorschewitz, Nina, Römisch-Germanische Kommission des Deutschen Archäologischen Instituts, Frankfurt am Main, Germany

Archives in public institutions and private collections contain an ever-increasing amount of untapped information on archaeological finds and find spots. Geopolitical developments in Central and East Europe as a result of the two World Wars had an enormous effect on archival holdings, often resulting in their complete destruction. However, following the fall of the “Iron Curtain”, material in archives in various European states are now once again becoming accessible. Often they contain foreign language, that is German, records. Thus the declared goal of the “Kommission zur Erforschung von Sammlungen Archäologischer Funde und Unterlagen aus dem nördlichen Mitteleuropa (KAFU)”, which was founded in 2001, is to reconstruct in international cooperation – Germany, Poland, Czech Republic, Slovak Republic – 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 preservation of archival holdings, even when only fragmentarily preserved, in order to extract the maximum possible information?

How can studies of archival material progress beyond mere typo-chronological description of objects and lay the foundation for up-to-date research projects?

How does the way in which archaeologically relevant archival holdings are dealt with vary across Europe? Are there methodological differences?

The session shall provide a forum for contemporary, interdisciplinary and theoretical research approaches towards archival studies. Specific topics are welcome to span all archaeological ideas, regions and periods.

TH6-06 Abstract 01

KAFU - A network for archive studies

Author - Dr. Neumayer, Heino, Museum für Vor- und Frühgeschichte, Berlin, Germany (Presenting author)

Keywords: Archive Archeology, International, KAFU

The situation after the fall of the iron curtain also allowed a research to the remains of the collections from former East Germany and the eastern Baltic region which had been partly destroyed or scattered as a result of the 2nd World War.

To achieve this in 2001 the “Kommission zur Erforschung von Sammlungen Archäologischer Funde und Unterlagen aus dem nördlichen Mitteleuropa (KAFU)” had been founded in Berlin. The members, scientists from polish, Lithuanian, Russian and German universities, museums and archaeological services, wanted to reconstruct the former collections by the study of the archival 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. Procza, Péter, Archeological Institut of the Slovakian Academy, Nitra, Slovakia (Presenting author)

Keywords: Archival Archeology, Archives, Carpathian Basin

The Carpathian Basin is as a venue of people from the prehistory. A multifarious archeological material is characteristic for it. The Carpathian Basin is an important territory of the archeological research in Europe. But about a large part of the artifacts and sites are not enough data available. Although the archeological research in the Carpathian Basin has nearly two hundred years of history, but since centuries come threasures, hoards, graves and artifacts to light. About these are data in official files, which are in the archives. From the 19. centuries amateur archeologists conduct research and they corresponded about their discoveries and finds with the museums and scientists. A part of the artifacts comes to the museums in Hungary and abroad. These old finds composed the basic of the modern archeology in Europe. The „archival archeology“ plays an increasing role in the international research. Its meaning is in gathering and publishing of all the written sources, locating and translating, mentioning the archaeological finds and sites. With the help of these written sources and reports it is possible to enlarge and precise the knowledge about older sites, archaeological contexts and to reconstruct the finding entities. These records are unknown, unprocessed and unpublished. With help of some examples I would like to present the potential of the „Archival Archeology“ for the today research.

TH6-06 Abstract 03

Reichs-Limeskommission und WHS Upper German-Raetian Limes – Sources and research from the archives

Author - Dr. Hülsen, 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 Roman-Germanic Commission (RGK) include large parts of the archive and the collections of the Reichs-Limeskommission (RLK). The RLK explored the Limes mainly from 1892 to 1903 between the Rhine and the Danube. The scientific results were edited by E. Fabricius in the series “Der Obergermanisch-Raetische Limes des Römerreiches” (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 Fundinventar ORL, reports in words and pictures about Limes inspections in the 1950s and 1960s and others.

2005 the Upper German-Raetian Limes became UNESCO World Heritage. Since then there is an increased interest in historical documents about this monument. The total inventory of the archives was already recorded in 2004, funded by the State of Baden-Württemberg. The documents for the Bavarian Limes section were registered and digitized 2009/2010 with special funds from the Free State.

The Deutsche Limeskommission (DLK) promotes workshops of old excavations and research on the Limes by doctoral scholarships for some years now. Thus, the Limes archive now serves as an information and data source for master and doctoral theses, for 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

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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 (HMC RAS), keeps invaluable documentary archaeological Collections. Its history started from 1859, when the Imperial Archaeological Commission (IAC) was established by Russian Emperor Alexander II. By the early 20th century IAC became coordination and control centre in archaeological and restoration studies of Russian Empire. IAC has accumulated unique archives of records groups and
photo collections, reflected archaeological investigations in the entire Russian Empire. Fortunately throughout the following reorganizations in Soviet times Commission has not been eliminated, and the archives were preserved well. Moreover remarkable materials exceeding them from scientific societies and different organizations (for example, Moscow and Russian Archaeological Societies, Petersburg Archaeological Institute, Libraries of Emperor Nikolai II and Great Princess Konstantin Nikolawow and Konstantin Konstantinovich), from personal collections of outstanding archaeologists, architects, restorers, orientalists and other researchers.

Nowadays the Scientific Archive of IHMC RAS contains 107 record groups and 79 photo collections of researchers and organizations which unify about 700 thousand documents. These documents cover age from the 18-th century to the present day and represent the interest of great value to researchers in Russian archaeology and culture, but the archives include also a large number of materials, which represent history, architecture and archaeology of European countries. Most of them are related to the investigations carried out on the territory of Courland, Estland, Lithland, the Grand Principality of Finland and the Poland, that once belonged to the Russian Empire. The Collections contain documents on the subjects of occasionally discovered artifacts; excavation documentation (field reports, including in German, photographs, drawings, maps); materials, which illustrate the architectural investigations and these projects; correspondence with European researchers and Scientific Societies; a numerous splendid photos, including glass negatives; of finds and architectural monuments; records and photographs from travels of Russian scientists in Europe, where we can find information about the museum collections and pictures of archaeological sites in Italy, Greece, France and others. Some of them have already been published, but many still remain unknown.

The documents on archaeology of European countries mainly relate to the period up to 1917 and stored in the collections of organizations and in private collections of scholars. Archival heritage of IAC, Russian Archaeological Society, Moscow Archaeological Society and personal collections of A.A. Spitsin, B.V. Farmakovskij, A.A. Bobrinskij, V.I. Smirnov are most interesting in this regard. All these materials can provide new documental resources for the history of European archaeology. International cooperation could give the opportunity for their best attribution and introduction to the world science.

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**TH6-06 Abstract 05**

**The Esquiline (Rome). Urban transformation and ancient topography between lost archives and WebGIS**

**Author** - Boi, Valeria, archaeological consultant, Roma, Italy (Presenting author)

**Keywords:** ancient topography, Open Access to archive documents

**Presentation Preference:** Oral

This paper is aimed at tracing the steps of the reconstruction of the ancient topography and of the architectural potential of an area of Rome’s historic centre, which was the subject of a doctoral thesis in Methodology of the archaeological research, disputed in February 2016 in the University of SASSARI.

The case-study area is the Esquiline District, located at the south-eastern borders of Rome’s inner center, in the Middle Ages, and until the last decades of the XIX century, the Esquiline was a suburban area, where only a few religious complexes rose up in a waste area occupied by gardens and orchards and then by the aristocratic villas built in the XVII century. The landscape kept itself almost intact for centuries, as is shown in the historical cartography, from the XVI century birds’ eye views to the renowned 1748 Nottoli map; this context changed sharply in a few years, when, in 1781, the city of Rome became the Capital of the new unified Italian nation, and a major building expansion completely transformed the face of the nineteenth-century city. In the aftermath of the Italian Unification, in fact, the landscape was heavily twisted, and a regular urban pattern completely erased the original ancient morphology. In a few decades, between 1873, when the first town planning was approved, and 1920, when last buildings’ construction was completed, the specifically created “Archaeological Commission”, headed by Rodolfo Lanciani, tried to save from complete destruction the complex and extremely rich archaeological context of the ancient Esquiline.

Archaeological findings were archived in the renovated in Lanciani’s “Forma Urbis Romae” and sometimes published in the journals “Notizie degli Scavi di Antichità” and on the “Bolletino della Commissione archeologica comunale”. In the following years, a lot of archive documents were dispersed in the archives of various State and Municipality offices, thanks to this doctoral research many of those documents are now accessible in an Open Access web database, and this “lost archaeology” is now accessible for researchers in a digital environment.

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**TH6-06 Abstract 07**

**Architecture of tumuli in Kosovo**

**Author** - Dr. Asa Baraliu, Sedat, Faculty of education, Prishtina, Kosova (Presenting author)

**Co-author(s):** Aiaq, Premtín, Institute of archaeology, Prishtina, Kosova

**Keywords:** graves, 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 where 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 where the tumuli are built only with stones, while the soil is used as an additional element. Moreover, when the tumuli are built with soil, the stones have served for building architectural parts, such as: surrounding ring, grave constructions, cover and tumulus caim.

The forms of grave construction are not the same in all necropoleis. Based on the construction, the graves can be classified as of rectangular shape, oval, elliptical circular, semi-circular as well as graves with simple pit. Each type of grave will be treated separately.

Rituals and funerals ceremony will be also elaborated in this paper taking into consideration that during the ceremony and burial are followed a number of rituals and funerals ceremonies starting by building the tumulus, opening the grave and the burial process. Furthermore, even in the cases of cremation are followed a range of rituals and ceremonies.

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**TH6-06 Abstract 08**

**The Prussia-Museum in Königsberg/Ostpreußen. New archaeological research on an old archive**

**Author** - Dr. Elsbruch, Heidemarie, Museum für Vor- und Frühgeschichte, Berlin, Germany (Presenting author)

**Co-author(s):** - Dr. Krueger, Michal, Adam Mickiewicz University in Poznan, Poznan, Poland (Presenting author)

**Keywords:**  pre-war archive, reconstruction of the archaeological landscape, research in former East Prussia

**Presentation Preference:** Oral

Up to World War II the famous Prussia-Museum in Königsberg kept a comprehensive archaeological fund which had been brought together during more than 150 years of research from the end of the 18th centuries onwards. The fund included findings from excavations as well as documentary record covering the entire region of the former province of East Prussia. After the war, almost all collections were regarded as being lost but big parts have been rediscovered unexpectedly after the turnaround of 1989/1990 in Berlin, in Kaliningrad and in other places. The materials that remained are mainly fragmented and incomplete but still bear witness of the immenseness of the pre-war archaeological research as well as of the richness and diversity of the historical landscape in the south-western Baltic region. Since 2012 the “Academy of science and literature in Mezin, Germany” realizes a huge project on the reconstruction of the archive materials from the Prussia collections, conducted by the Centre for Baltic and 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?
The Oscar Almgren's Archive.

At the Roots of the Roman Period Archaeology

Author - MA Szt. Izabela, Museum für Vor- und Früghistorie, Berlin, Germany (Presenting author)
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Keywords: archive, Roman Period, Oscar Almgren, Swedish National Heritage Board in Stockholm
Presentation Preference - Oral

Oscar Almgren was one of the most famous archaeologists who dedicated his work to issues concerning the Iron Age. His PhD thesis Studien über nordeuropäische Fibelformen der ersten nachchristlichen Jahrhunderte mit Berücksichtigung der in der engeren und weiteren Umgebung der Ostsee gelegenen Fundorte was a milestone in the archaeology of the Roman Period. It was defended and published in 1937.

The significance of Almgren's work results not only from an in-depth analysis of fibulas but also from a wide territorial range of his research. In the end of the 19th c. this Swedish archaeologist studied finds present in at least 117 museums placed all over Europe. The private archive of Almgren is an important result of those studies. Currently it is held in the Swedish National Heritage Board (Riksantikvarieämbetet) in Stockholm.

Our paper will be one of the first presentations concerning the legacy of Almgren. His archive is a rich and diverse set of documents. Among others it contains press cuttings, letters, notebooks, manuscripts, as well as personal photographs. Emphasis will be put on presenting a card file (among other things so called Fibulæ), which is the largest and the most compelling part of the whole archive. Its content can be estimated at over 6000 of sheets with artifacts fine pencil drawings and information. It is also worth mentioning that Almgren collected data concerning not only fibulas but also on other finds (e.g. Roman imports, weapons, bracelets, necklaces or buckles and belt fittings), which is an important contribution to chronological and regional studies. Materials present in the archive are of very high scientific value and importance. For many archaeological objects lost during the Second World War it is often the only surviving documentation.

The finds of the Przeworsk and Wielbark cultures in the archives of Herbert Jankuhn

Author - Dr. Cieślinski, Adam, University of Warsaw / Institute 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.


Roman Iron Age princely graves

Author - Prof. Schuster, Jan, Archaeology, Lodz, Poland (Presenting author)
Keywords: Archaeological data, Princely graves, Roman Period
Presentation Preference - Oral

Rich Roman Iron Age graves, equipped with Roman imports, are interpreted as being burials of persons of high status in the social hierarchy. Unfortunately a lot of these graves were discovered by accident and the documentation of the finds is poor. So one can say, an inexpert discovery is quite a main attribute of the Roman Iron Age princely graves. Needless to say that this fact means a big loss of information. A second, not less important point is the state of analysis and publication of the finds. Not infrequently we actually do possess more informations than published. It is difficult to explain, but especially in case of princely graves very often not all data were released in publications. Studies of old finds, stored in the magazines of museums, deliver new data and give new basis of interpretations. This will be shown by the example of some so-called princely graves of the Lubów type.

The Herbert Jahnkuhns scientific legacy – an old archive as a source for modern research

Author - Prof. Nowakowski, Wojciech, Institut of Archaeology, Warsaw University, Warsaw, Poland (Presenting author)
Keywords: Archives, East Prussia, Jankuhn
Presentation Preference - Oral

Herbert Jankuhn, one of the greatest, albeit most controversial characters of the 20th century German archaeology, is known primarily as a researcher of Halstatt empire (Schleswig), or as one of the initiators of the new edition of the monumental Reallexikon der Germanischen Altertumswissenschaft publication. However, it is worth to remember that the beginning of his scientific career (determined by his doctoral thesis submitted in 1931) was related to his home country – East Prussia.

The main subject of his doctoral thesis was the Early Roman Period in Samland. Nevertheless Jahnkuhn collected data from the whole region of East Prussia, going well beyond the scope of the defined geography. He created over a dozen of cards with notes and drawings, documenting few thousands of finds from the Roman, as well as the Migration Periods originating from the vast area between Lower Vistula and the Nemunas. Fortunately, scientific legacy of Jankuhn has survived the Second World War and is kept in the Archives of Archäologischen Landesmuseums Schleswig.

The personal registry of Jankuhn, created as a starting point for his doctoral dissertation, had some limitations. It didn’t include descriptions of pottery or peculiarities of funerary rites. But, despite these gaps and constraints, Jahnkuhn’s card files allow the modern researchers to reconstruct the archaeological picture of East Prussia during the Roman Period. First of all, long sequence of grave assemblages can be established, helping to clarify different problems of chronology. For example, the separation of a large group of objects with eye-brooches of the Almgren 61 type, marks the latest stage of B2 phase. In spite of appearances, it is not the antiquarian problem only – precise dating allows to determine concentrations of archaeological sites that can be identified with Galindai and Soudinoi mentioned by Pliny and as such it could serve as an excellent starting point for the reconstruction of the European world of Barbaricum. Although, as it was mentioned before, Jahnkuhn’s registry was dedicated to research the Early Roman Period, it included also data on large series of finds from the Late Migration Period. One of the most interesting objects is the iron scabbard from Mazurian cemetery in Miętkie (former Mingfen), Scandinavian import, and the first find of this type in East Prussia. This shows clearly that, although other scholars, primarily F. Jakobson, documented the Migration Period of the East Prussia, Jankuhn’s archive could be a valuable source of research for this period.

In conclusion it has to be stated that Jankuhn’s archive forms a very rich source for knowledge about east-Prussian “lost archaeology”.

The cemetery of Linkuhnen (Rževskoe):

A case study on the potential of archival archaeology

Author - Dr. Jahn, Christoph, Museum für Vor- und Frügheschichte Berlin, Berlin, Germany (Presenting author)
Keywords: Archival data, East Prussia, Prussia collection
Presentation Preference - Oral

In the last 20 years, colleagues from Germany, Poland, Russia and Lithuania have collectively worked on the reconstruction of the archaeological in former East Prussia before WW II. The re-evaluation of archaeological research before 1945 in the region between the Vistula River in the west and the Nemunas River in the northeast remains a puzzle with many pieces missing but is of great importance to the modern archaeological research in Poland, Lithuania and the Kaliningrad Oblast due to the extremely dense distribution of archaeological finds.

One of the "lost" archaeological sites is the cemetery of Linkuhnen at the Nemunas River, which was excavated between 1928 and 1939 by the Prussia Museum in Königsberg (Kaliningrad), with a large number of finds from the Roman Iron Age. Migration Period and the Viking Age. The results were never properly published and all objects were considered to be lost after 1945. With the re-discovery of the Prussia collection and archives in Berlin in 1990, colleagues from different countries established a scientific network to open up archival sources for international research. The cemetery of Linkuhnen can serve as an example of the potential that still lies within the archaeological and archival material that survived at different institutions all over Europe.

The reconstruction and analysis of the original field documentation and other archival sources show the importance of Linkuhnen for the very first time: the cemetery was used for over 1000 years from the Roman Iron Age and the Migration Period to the Viking Age with almost 500 burials and 5000 grave goods. With over 150 swords from the Viking Age, Linkuhnen is the biggest site of Viking Age sword weaponry in the Baltic and Scandinavia. We also know of nine swords with Ulfberht inscriptions, what makes Linkuhnen the site with the highest number of Ulfberht blades in Europe. The presentation deals with the problems and solutions during the process of re-evaluating the archaeological significance based on the objects and archival material from Linkuhnen.
TH6-06 Abstract 16

Excavating an Archive - The Irish Viking Graves Project

Author: Dr. Harrison, Stephen, University of Glasgow, Glasgow, United Kingdom (Presenting author)
Keywords: Archives, Ireland, Vikings
Presentation Preference: Oral

Nineteenth-century Dublin saw the recovery of a substantial assemblage of Viking artefacts from several parts of the city, and particularly from the Kilmainham-Islandbridge area. Unfortunately, very little of this material was published at the time, and the surviving manuscript records are limited and contradictory. The Irish Viking Graves Project was set up to address these problems, and to produce the first comprehensive and accurate catalogue of these artefacts and the furnished Viking graves that they clearly represent. To do this, the archives of the National Museum of Ireland were used. But this necessitated a rigorous analysis, considering features such as date, function, and authorship, and grave-goods from Dublin were recorded at several institutions in Ireland and the UK and Denmark.

This paper discusses the methodology used by the Project, which moved beyond archival records to consider the relationship between these manuscripts and surviving artefacts in various museums, as well as the relationship between the archives and cartographic evidence for Viking graves. By doing this, the paper demonstrates the potential of research of this type, and provides an Irish perspective for this session.

The paper will also engage with key research issues. Now that the catalogue has been published, we have the first (accurate) list of grave-goods from Dublin, divided into acquisition groups and linked to more or less specific locations around the modern city. But how can this ‘new’ evidence be used to investigate Viking activity in the Dublin area and farther afield? Potential areas of future research include investigations of topography, which suggest links between burials and boundaries at local and regional levels; the use of artefacts to promote and sustain identities at multiple levels; and scientific analysis of some of these artefacts. Again, this will provide an Irish perspective on these key issues.

TH6-06 Abstract 17

Forgotten maps – important information about the 3rd century AD graveyard Häven, Mecklenburg

Author: Dr. Voss, Hans-Ulrich, Deutsches Archäologisches Institut, Frankfurt am Main, Germany (Presenting author)
Keywords: cemetery, Late Roman Iron Age, unpublished maps
Presentation Preference: Poster

The extensive working papers of Friedrich Lisch (1801-1883) on the late Roman Iron Age inhumation graves from 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, Jens Jacob Asmussen Worsaae and others. The previously unpublished map of the site, drawn by Lisch’s son Friedrich Wilhelm Lisch in 1889, gives new and important information about the inner structure of the graveyard and its meaning for intra-Germanic relations between southern Scandinavia and Central Germany during the 3rd century AD. The grave categories as well as the grave furniture can be clearly differentiated: some grave-shaft affinities with types found on Zealand in the North, while others are more similar to graves of the Hasselblen-Leuna-group in Central Germany in the South. It seems that Häven was in fact a staging post between these two centres.

TH6-06 Abstract 18

The gift of director of Königsberg's Museum Bezenberger

Author: Dr. Khomakova, 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 was 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 of the plate, written in old Russian orthography, the collection came to the Museum not as the result of II World War, but before 1818. The right side of the plate contains two strands of beads from Livland and ‘Etruscan graves’. Most interesting are names of ‘places of finds’ from the left side: Russen, Stobingen, Lützen, Travitten, Kalberg bei Rantau, Waren, Potwitten, Grebielen, Daumen, Eschenort, that are correlate to the names of graves from East Prussia, that were excavated in second half and the end of 19th century. Finds from these graves kept in Prussia-Museum in Königsberg. Miserable, but curious data in register reads as ‘gift of director of Königsberg’s Museum Bezenberger’ from ‘non inventory fund’. A search of information about...
is especially vividly observed in the scattered archival materials by K.V. Salnikov, A.P. Shokurov and R.G. Kuzeev. Also, scientists' separated depending on the scientists' workplace location, often there were no conditions for heritage storage. In Bashkir Urals it the archives and document funds often results in loss of archaeological documents. Part of the archaeological archive materials was Such diversity of the archives led to fragmentation of archaeological materials and sometimes even to their loss. Reorganization of of Bashkortostan). Ufa provincial archives (now the Central Historical Archives of the Republic of Bashkortostan) started to be formed possible owing to international cooperation. Materials about the region's archeology were stored in the archives of the former Soviet 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: experience of mapping and survey in SW Courland

Author: Dr. hist. Virse, Ingrida Liga, Latvian National Museum of History, Riga, Latvia (Presenting author)

Keywords: Archival Archaeology, systematic mapping, identification and research, SW Courland

International cooperation of archives in the study of archeology of the Bashkir Urals

Author: Shuteleva, Is, Ufa, Russian Federation (Presenting author)

Keywords: archives, international cooperation

The issue of fragmentation and disunity of archival documents stored in the archives of the Republic of Bashkortostan was raised in the beginning of the 1990s. Data restoration about archeological monuments and finds of the Bashkir Urals was made possible owing to international cooperation. Materials about the regions' 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. Reorganization of the archives and document funds often results in loss of archaeological documents. Part of the archival archaeological archive materials was separated depending on the scientists' workplace location, often there were no conditions for heritage storage. In Bashkir Urals it is especially vividly observed in the scattered archival materials by K.V. Salnikov, A.P. Shokurov and R.G. Kuzeev. Also, scientists' manuscripts can be transferred to some organizations after their death, which also leads to partial loss of the material, for instance, again, the long-suffering R.G. Kuzeev’s fund. If the World War II became the most destructive for the archival funds in some regions of the USSR, other processes can be observed in the rest of the country. The processes of mass loss of archival materials are related to revolutionary events and the Civil War. Active passion for archeology of the most educated part of society spread in the Ural region, led to the exchange of archaeological information with the European scientific elite. In the fund by E.H. Minns (Cambridge University Library: Manuscripts) a fragment of correspondence between A. Pashkova, the owner of Voronezhsky plants (05.09.1913), and E.H. Minns was discovered. Another significant impact on the preservation of archival archaeological sources was the period of the late 1930s - the period of repressions, during which not only the field diaries were destroyed, but also the correspondence of repressed archaeologists. It is wrong to claim that archaeologists in the USSR completely stopped communicating with foreign colleagues and were not interested in foreign publications and foreign archival funds. But this scientific communication was of “shaded” and secret character. It is impossible to restore the disturbed dialogue of Russian and West-European archaeologists without the employees of archives and funds of European countries. Thus, the restoration of the lost archived information is possible only through international cooperation.
TH6-07 Abstract 01
Cultural resilience and adaptation at the frontier: Klaipėda and Žardė pottery analysis

Author - PhD student Ubiš, Edvinas, Klaipėda University, 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 settlement. These settlements are about 8 kilometers from each other. The first one represents Baltic crusaders and the second one local community. Klaipėda was founded in 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 complex analysis and comparison. The main idea was to identify potter groups, which in process of interactions between local and crusader communities were imported and possibly came from one to another site. The analysis showed that locals used so called “German” style greyware pottery, but there were not found to the newcomers and local pottery (for example proto stone ware). On the other hand, only small number of local tradition pots were found in Klaipėda castle and nearby town cultural layers. The author calls into question the possibilities to interpret such artifacts as markers of interaction, adaptation, resilience or assignation 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, Chestnut Hill, MA, United States of America (Presenting author)
Keywords: Central Asia, hydrosocial, landscape archaeology

Over the past several decades, there have been a number of developments that have changed our fundamental understanding of the changing relationships between societies and water resources, particularly at the local level. These new understandings have particular import in arid-margin ecologies, where scarce or unreliable water resources create a natural fragility in the socio-ecological balance. In transitional regions, such as oases and delta-desert boundary zones, small-scale or local changes in the interaction between people and water may bear significantly on broader-scale issues of human-landscape co-evolution and vice versa. This paper will explore, via a multi-proxy approach that integrates geoarchaeology, remote sensing and survey data, new ways of conceptualizing marginality, transitionality and hydrosocial relationships in late-Holocene arid margins.

Address these co-evolutionary and multi-scalar aspects of human/water relationships, this paper considers the arid-zone transitional zone of the inland Murghab Delta in Turkmenistan, an alluvial fan that has seen complex trajectories of socio-ecological development throughout the late Holocene. Populated since at least the late 3rd millennium BC and likely earlier, the region has been described by a number of competing models: one that treats the region as an “oasis” in which desertic processes have been more or less stagnant throughout the late Holocene, and one that envisions the region as a widely occupied and well-cultivated alluvial fan in which desertification was a relatively late process. The research described in this paper traces a more dynamic and locally variable trajectory that focuses on small-scale interaction between alluvial and aeolian landscapes in the context of regional-scale hydrological, geomorphological, environmental, and social trajectories. The paper will demonstrate that landscape change throughout the Holocene has been characterised by pronounced variability at the local level not well described by a regional scale approach, and thus bears significantly on the ways in which societies interacted with, exploited and modified nearby hydrological resources. Analysis include Loss on ignition, Particle Size Analysis, geochemistry and micromorphology, which in conjunction with satellite imagery will help to elucidate differential aeolian encroachment and locally variable alluvial processes.
This variability can then be used to suggest local and sub-regional environmental and ecological 'niches’ that can help us understand hydrological relationships in these unique transitional environments.

**TH6-08 Abstract 02** Preliminary results of the paleochannels network of Margiana on the basis of remote sensing analysis

**Author** - Arciero, Roberto, Leiden University, Leiden, Netherlands (Presenting author)

**Keywords:** Central Asia, Archaeology, Remote Sensing, Water Management

**Presentation Preference:** Oral

Water resources have played an important role in the formation and development of all societies across millennia. Turkmenistan has been a desert territory since the end of the Bronze Age, and water availability has always been an issue. During the transition between the Bronze and Early Iron Age the Murghab alluvial fan was characterized by a complex phenomenon of urbanization, and was influenced by an important interaction between mobile pastoralists and farmers. Taking into account the high importance of water resources for the agricultural communities, and considering that pastoralist sites were close to the sedentary sites, little is known about the water management of micro-scale areas. Undoubtedly the disappearance of the largest sites at the end of the Middle Bronze Age (2400-1550 BCE) and the southwards shift of the barycenter of the settlements at the end of the Late Bronze Age (1550-1200 BCE) were strongly connected to water management. Despite the analysis of the ancient Murghab alluvial fan on a macro-scale area, data coming from micro areas showing the ancient hydraulic network are relatively scarce. This paper presents the first results of the preliminary remote sensing analysis conducted on the basis of satellite imagery, aerial photos and cartographic maps for the sedentary sites area of Topqol 1, Adj Kui 1 and the nomadic site area of Site 1211-1219 and Ojakly. The aim is to analyze the different water management strategies of both sedentary and nomadic settlements and their possible interaction.

**TH6-08 Abstract 03** The water management in the Iron Age and landscape taphonomy of the Serakhs oasis (Turkmenistan)

**Author** - Ma Buiseka, Nazari, Institute of Archaeology, University of Warsaw, Warsaw, Poland (Presenting author)

**Keywords:** Iron Age, Serakhs oasis, Central Asia, Water management, landscape taphonomy

**Presentation Preference:** Oral

The Serakhs oasis, located in southern Turkmenistan near border with Iran and Afghanistan, is a subject of study of the Polish-Turkmen Archaeological Mission headed by prof. Barbara Kaim since 1995. Due to field surveys conducted here since 2007 above 170 sites of different periods were discovered, which enabled the study of oldest settlement pattern and the water management system in particular periods. The best recognized oldest settlement pattern currently is the Iron Age (Yaz culture). Above 700 sites with the characteristic pottery of Yaz I-III periods (circa 1400-330 BC) have been discovered in Central Asia, north-eastern Iran and Afghanistan by various studies carried on since the beginnings of the XX century. Many of the sites where connected with Achaemenid Empire, while large extent of settlement along with associated canals were used as proof to existence of large scale irrigation networks in Central Asia.

The water management system of the Serakhs oasis is one of the most important subjects of study of the mission. The recent approach is based on the deeper analysis of the context of the sites with use of Geographic Information System environment. The ArcGIS database, which gathers satellite imagery, digital elevation data, topographic maps, the vector data related to hydrology, ancient and recent occupation are used as a tool to discuss many questions related to settlement pattern of the oasis.

The analysis of mentioned data, presented in the paper, makes it possible to investigate the water management system in Yaz periods in the Serakhs oasis. Here the topographic maps, high-resolution satellite imagery made in different periods of time and SRTM derived levees are used followed by deep analysis of landscape taphonomy of Serakhs oasis. The paper concentrates on the water management in the Yaz I-III periods, which is especially important for understanding how water management changed in comparison to the later periods. The future areas of study are also indicated.

**TH6-08 Abstract 04** Examining Holocene Socio-Hydro Landscapes in the Gobi Desert, Mongolia

**Author** - Holgvin, Leah, University of Southampton, Southampton, United Kingdom (Presenting author)

**Keywords:** Holocene desert hydrology, Human-Environment Interactions, Mongolian Neolithic

**Presentation Preference:** Oral

Archaeology traditionally views social progression as a linear trajectory, where hunting and gathering and nomadic pastoralism are stepping stones to sedentary lifestyles and agriculture. The Mongolian Neolithic (3500-2000 B.C.E.) contracts this dominant narrative, especially in the South Gobi Desert where there is evidence of sedentary communities who utilized pottery, mortars, and pestles. Some researchers argue these were hunter-gatherers foraging in the area. At some point during the Bronze Age (3500-1700 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 Ulan Nuur paleo lake and paleo hydrological system located in the Gulf Desert of Omnogovi province, Mongolia. By examining this Holocene socio-ecological landscape, it may provide clues to how the changing hydrological system may have influenced resource availability, which in turn, may have affected local subsistence strategy choices.

**TH6-08 Abstract 05** The archaeology of water management in context of west Khorsan, Tapeh Damghani, Sabzevar city

**Author** - Garazhian, Omran, 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 Kaf Shur river. The excavation was conducted over two seasons. During the second season, the excavation concentrated on four workshops. The northern ones, workshop II and III, revealed a series of brick walls. These walls were buried under two meters of natural deposits caused by floods from the 2nd millennium BC, leading to excellent preservation. The context and architectural construction suggest that these walls are the remains of water resource management structures: preliminary dams for controlling river flooding, obtaining surface water, and redirecting water to channels. This research will examine evidence from Workshop II and III of Tapeh Damghani in the context of site location, landscape and environment that suggest adaptive methods of water control.

The excavations are supported by the City Museum of Sabzevar, which is planning to develop an open-site museum by the Tehran-Mashhad highway.

**TH6-08 Abstract 06** The Spread of Fruits along the Silk Road

**Author** - Dr. Spengler, Robert, Washington University in St. Louis, Lancaster, United States of America (Presenting author)

**Co-author(s)** - Dr. Frischelt, Michael, Washington University in St. Louis, Lancaster, United States of America

**Keywords:** Agricultural Spread, Archaeobotany, Silk Road

**Presentation Preference:** Oral

The Great Silk Road was the largest commerce network of the ancient world. It linked the disparate ends of the vast Eurasian supercontinent and in doing so connected the imperial centers of East and southwest Asia. While organized trade, including military outposts and government taxation, along the Silk Road dates back to the Han Dynasty (206 BC–AD 220), the exchange of goods, ideas, cultural practice, and genes, through the thousands of kilometers of desert and mountainous expanses comprising this region dates back to the third millennium BC. Over the past two millennia, the ebb and flow of cultures directly shaped the trajectory of human history in myriad ways, including by spreading agricultural practices and crop varieties. Among the many goods that moved along the Silk Road were a wide variety of plants, including many of the fruits that are familiar to us today. Archaeobotanical research at the Tsashkurak 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 Karakhanid Khana (A.D. 840–1212) and was likely a high-elevation mining town. Preserved plant remains near the central square of the ancient occupation site paint a picture of the types of crops and grains available in markets along the Silk Road. Archaeobotanically tracing the path that plants followed on their long journey across Central Asia, provides us with a map laying out the early routes these foods took to ultimately reach our dinner plates today.
TH6-09 Abstract 01

Studies on remains of daily activities from the LBK Neolithic settlement

Author: Michał, Katarzyna, University of Gdańsk, Gdańsk, Poland (Presenting author)
Co-author(s): Potoczyński, Łukasz, University of Gdańsk, Gdańsk, Poland

Keywords: activity zones, processing of food, social relations

Presentation Preference - Oral

This paper focuses on aspects of identification of activity zones around LBK longhouses discovered at the multi-phase Neolithic settlements in southern Poland.

Studies on the spatial and functional diversity of features located around the longhouses as well as quality (a state of preservation) and quantity of artefacts found there (pottery, finds, fragments of stone tools and grain remains) allow us to distinguish two main types of activity zones interpreted as possible places of household activities and intense deposition of waste, and places associated with processing and/or storing of food. Indication of these domestic/kitchen zones that have been used to daily activities and have been probably shared by inhabitants of contemporary houses enable deeper insight into social patterns and complexity of social relations. The recognition of domestic area related to processing of food seems to be also especially important to further studies on gender relations.

Another aspect of the study is to emphasize a possible limitation of recognition of activity zones because of long-term depositional process and the overlapping of various activity zones that can be problematic during analysis of the domestic artefacts recorded at the multi-phase settlements.

TH6-09 Abstract 02

Tell me who is living here... Some considerations on people living in Concise, a Swiss Neolithic site

Author: Post doctorale Chéquet, Patricia, Muséum d’histoire naturelle, Genève, Switzerland (Presenting author)
Co-author(s): Burri-Wyser, Elena, Etat de Vaud, Sipal, Archéologie cantonale, Lausanne, Switzerland
Co-author(s): Winiger, Ariane, Etat de Vaud, Sipal, Archéologie cantonale, Lausanne, Switzerland

Keywords: lake dwelling, Neolithic; session, tasks sharing

Presentation Preference - Oral

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 artefacts founded into domestic context, producing some excellent summarising results for individual sites or local territorial contexts.

Particularly we would compare how the relations between domestic artifact had been interpreted in the key of reconstruct the complexity of ancients societies, the formation of elites and their recognisability, in terms of a broad range of chronology and geography too. The session will explore the potentiality and the limits of our records and our approaches to face social and gender inequality in ancients communities, trying to suggest general considerations that can be useful for the study of many spaces and chronologies.

TH6-09 Abstract 03

Traces of households, activity areas and social inequality in a Late Copper Age site in Hungary

Author: PhD Fülöp, Szilvia, Hungarian National Museum, Budapest, Hungary (Presenting author)
Co-author(s): Serlegi, Gábor, Research Centre for Humanities of HAS Institute of Archaeology, Budapest, Hungary

Keywords: activity areas, household unit, social inequality

Presentation Preference - Oral

The archaeological traces of households and household units as the scenes of community interaction form an important interpretative level, determining numerous characteristics of the life and material culture of the community. My research is based on the premise that the archaeological identification of households and activity areas is possible, since the basic activities of everyday life were carried out in a delimited area and within a delimited timeframe. In my work I made an attempt to define the spatial and temporal limits of households and to determine the remains of which activities within a household have been preserved. The interpretation and comparison of these hypothetical households as units and 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 – archaeozoological, anthropological, petrographic, geochemical, and radiocarbon dating – analyses, and environmental archaeological data from the region Transdanubia in Hungary. The proceeding of the finds was followed by the detailed quantitative and qualitative analysis of the materials of the pits and the pits themselves (correspondence analysis; one-way correlation analysis) according to the observed groupings. With the help of the spatial statistical and GIS analysis of the finds, the mapping of the distribution of the finds enabled the quantitative and qualitative study of the various classes of finds, which could help us to shed light on the distribution of activities and traces of social inequality taking place within and outside the households.

TH6-09 Abstract 04

Culture and society of a Hellenistic site: houses and artefacts of Sicilian city of Finziade

Author: Researcher Toccano Raffa, Alessio, CNR-IBAM Catania, Messina, Italy (Presenting author)

Keywords: Hellenistic world, houses, Sicily

Presentation Preference - Oral

The contribution is about housing of the Hellenistic-Roman period of Finziade, in the province of Agrigento, on the southern coast of Sicily.

There are 12 houses systematically excavated by the University of Messina between 2003 and 2014 that constitute a privileged vantage point for understanding the socio-cultural and economic dynamics of Sicily between the III-II centuries. B.C.

The 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.
An escape by divorce was for the womenfolk mostly not possible due to laws or social grounds. Wergeld should save the girl's life at the family in law, so that they cannot afford it to kill the maid and repeat their old demands. This might be to pay debts or as sign for a contract as well as a sign for an alliance or as sign that a vendetta is over. The high wergeld was an insurance for the girl not to be killed by her new family. Girls were engaged very early to the family in law. From this forced marriage can be deviated the grap for the weapon must have been for some women or girls the exit from a forced marriage.

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 fulfil the stereotyped of womanhood. Men were shocked when they found out that they have fought against women. The reasons why a woman joined war are various: poverty, a bad childhood, desire for adventures or a problem with their natural gender. With the beginning of the 19th century emancipation was another reason why women turned into army service. The reasons why a woman joined war are various: poverty, a bad childhood, desire for adventures or a problem with their natural gender. 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. 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. 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. 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. 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. 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. 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. 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. 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. 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. 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. 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. 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. 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. 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. 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. Men were shocked when they found out that they have fought against women. The
will continue to focus on sites occupied for a large amount of time. By studying the tool marks on archaeological charcoal, we will try to reveal the chaine opératoire and the socio-professional organization of wood cutting and fuel production. Afterwards, a dendrochronological approach led 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)
Co-author(s) - Cardoso de la Llave, Ricardo, University of Córdoba, Córdoba, Spain
Keywords: charcoal, Late Middle Ages, metallurgy
Presentation Preference - Oral

Among the various raw materials offered by the forest, the charcoal had a leading role. This is one of the most used fuels throughout history, thanks to its high calorific value. In the Late Middle Ages, it became a must for industrial processes as a source of thermal energy, especially in the field of metallurgy. Based on the information provided by the documentary sources of the time, the aim of this paper is to analyze the use of this natural resource in Hispanic metallurgy, to know the types of existing charcoal, to examine the works they were designed to and to give some trends about commercialization in the 14th and 15th centuries.

TH6-10 Abstract 03
Synthesis of the anthropological approach

Author - Dr. Vaschatsk, Christophe, ISEM UMR 5564/LAS3 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 exuviae, food, metal, glass, textiles, leathers, soap, salt, plaster) gathered in a same data basis. In order to understand phenomenon of rupture and continuity of the practices, the corpus comprises a chronology going from the Romanization to the Industrial Revolution. Craft and industry constitute the major part of the corpus. This work raises new questions. Currently, archaeologists aim to link the use of fuel with the type of products made (ceramic, lime, glass, etc.). Also, they affirm that some taxa have a calorific value more important than others, and that craftsmen used to chose the fuel regarding its specific properties. Nonetheless, our research proves that these ideas are not representative of past practices. For this reason, we propose a new approach which takes into account the constraint imposed by thermal and technical necessities (i.e. concentration of fire, or, on the contrary, circulation of fire in the kilns). Indeed, the choice of fuel does not always rely on the choice of a taxa for itself but on other criteria such as morphology, caliber, humidity level, etc. Furthermore, we propose a different interpretation of anthropological data. Generally, anthracologists consider that their data only reflect the choice of the craftsmen and the ecological constraints. But it appears that the role of land/forest owners, who managed the fuel resources, has never really been discussed or taken into account. This communication will propose a first discussion on the subject. Studies of multi-craft sites will be presented, as well as examples of "gestion sur pied" (deviation of one taxa from a same tree in order to fuel different activities). Recent methodological developments will be introduced, such as the restitution of calibrers, 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 least, the energetic transition towards the use of fossil charcoal will also be attempted.

TH6-10 Abstract 04
Fuel Selection and Forest Management by Middle Age Belgian Brass Blacksmiths Along the Meuse River

Author - Dr. Chevalier, Alexandre, Royal Belgian Institute of Natural Sciences, Brussels, Belgium (Presenting author)
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Co-author(s) - Plummer, Jean, Service de l’Archéologie, Service Public de Wallonie (SPW), Namur, Belgium
Keywords: Belgium, Brass blacksmith, wood charcoal
Presentation Preference - Oral

The influence of the Moss copper and alloy industry, in particular brass production during Middle Age Western Europe, is an irrefutable historiographic fact. Caudrons, bowls, and pans produced in the town of Dinant as well as in the nearby Bouvignes, were exported throughout French and English kingdoms, as far as Barcelona in Spain. In the 15th century, copper 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 are due to several causes. Although the Meuse region lacked copper and tin ores largely used in Middle Age metallurgy, very good communication ways provided by the Meuse River and its tributaries, as well as the establishment of strong commercial ties with the German towns of Cologne and Dortmund for copper supplies and with London for tin supplies, overcame this natural limitation. In addition, merchants 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 Moss merchants cannot however explain this metallurgy industry boom alone. Indeed, the Meuse region is rich in two products that are necessary for brass production: calamine that contains zinc oxide and natural refractory clay, decoi, that is appropriate to build bricks, hearts, smelters and molds. Copper and brass production however ends abruptly in 1446 in Bouvignes, property of the earlom of Namur, and in 1544 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 coppersmith buildings, with their workshops and domestic spaces.

We will present the results of wood charcoal analyses from four different sites – Bouvignes Portal Chevalier, Dinant Oblats, Dinant Batau and Dinant Churchill – that represent 13 different coppersmith workshop spaces dated between the 13th and the 16th centuries. Because Dinant and Bouvignes were competitors and depended on two rival political entities, our results are highly significant in terms of territory exploitation and cultural identities along the Meuse River.

TH6-10 Abstract 05
The use of coal in “la chaine opératoire du fer” to late Middle Ages in the north of France

Author - Jagou, Benjamin, Imap, Aichi, France (Presenting author)
Co-author(s) - Dr. Arribet-Daron, Danièle, Université Paris 1 Panthéon-Sorbonne, Paris, France (Presenting author)
Keywords: coal, Flanders, smithy
Presentation Preference - Oral

Since 2008, preventive archaeology operations in northern France, mainly carried out by the National Institute for Preventive Archaeological Research (INRAP), have enabled to highlight the use of coal as a fuel for the "chaine opératoire du fer" as from the 13th century. Studies about almost ten sites allowed developing various issues related to this kind of fuel from a technical, but also environmental and commercial point of view. These lines of research allowed implementing a project of thesis in 2014 under the direction of A. Joubert and tutoring of D. Arribet-Daron of the University of Paris 1 Panthéon Sorbonne. Referring to existing archeological, archeometrical and text studies, the goal of this thesis is to answer the questions related to these discoveries. Therefore, it will help to understand the environmental and commercial reasons of the late transition between charcoal and coal compared to the rest of France, and also to figure out the impact of coal on the "chaine opératoire du fer" and its technical processes. Eventually, it will show that the use of this fuel lead to the development of commercial exchanges between the area of study and some close European countries during the late Middle Ages. By taking part to this symposium, I would like to present more specifically all these issues as well as the results of my first two years of work.

TH6-10 Abstract 06
Wood supply strategies in a sparsely wooded area?
The case of Limousin region in the 19th century

Author - Dr. Paradis-Grenouillet, Sandrine, Eveha, Condat sur Vienne, France (Presenting author)
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Keywords: fuel consumption, Limousin, Woodland
Presentation Preference - Oral

The case of Limousin region in the 19th century

We will try to reveal the chaine opératoire and the socio-professional organization of wood cutting and fuel production. Afterwards, a dendrochronological approach led on charcoal will authorize to inter-date the archaeological sites studied and to discuss the type of wood practiced (existence of coppice?).
Between the 18th and 20th centuries the Limousin region was notably lacking in woodland: the level of forest in the landscape was less than 10%. However, it was during this period that the development of the Limoges porcelain industry, a major fuel consumer, took place. Alongside this industrial boom, the urban population was also thriving, thus the need for fuel in the city became even greater.

The 19th century was a period that put great pressure on firewood resources and one wonders how, and to what extent, the population and industry in the city of Limoges were able to meet their considerable fuel requirements. We therefore look at sources that can better trace the evolution of fuel consumption in Limoges. By combining historical sources, we analyse the heavy fuel consumption of the city of Limoges in relation to resources available in the region and describe the different procurement strategies implemented. The importance of the porcelain industry is discussed and we make a start on the evolution of the wooded landscape in the Limousin.
Many of the older excavation reports and publications contain notes about piles that have been found, but not much effort has been placed on the interpretation of the finds. That kind of information is also found in reports about other important monuments such as the settlements of Kunda and Tamula. Is it possible for us today to rely on results of excavations conducted 50 and more years ago, and prove that these archaeological monuments contain evidence also about pile dwelling? And if this is not possible to be done with archival research, then which studies and methods could give a result?

TH6-11 Abstract 03

The settlements of Kryvina peat-bog region in the context of cultural changes of 3 - 2 millennium BC

Author - Chamiakuzi, Maxim, Institute of History NAS of Belarus, Minsk, the Republic of Belarus (Presenting author)

Keywords - Kryvina peat-bog micro-region, Late Neolithic - Bronze Age, Northern Belarus (Lake region)

Presentation Preference - Oral

Kryvina peat-bog is an archaeological microlayer located in Viciebsk region of the Republic of Belarus (south of Belarusian Lakeland geographical region). To date, there are 10 archaeological settlements of Neolithic - Bronze Age period. The earliest belongs to the 4th millennium BC, and the most recent - to the middle/3rd quarter of the 2nd millennium BC. The majority of the sites of the region are presented by the materials of 3rd - first half of 2nd millennium BC which belongs to Usvayat and North-Belarusian cultures. 9 monuments preserve organic in the cultural layers, 8 of them are peat-bog sites. The most studied settlements of the micro-region are Krivina 1, Asasiev 2 and Asasiev 7. Settlements. Since 2018, the Asasiev 2 settlement was annually researched by the joint expedition of the Institute of History of NAS of Belarus and the Faculty of History of Belarus State University under the guidance of Michael Chamiakuzi and Maxim Chamiakuzi. In the southern part of the site 27 square meters were excavated. The use of new approaches in the field studies and the analysis of the received materials (in comparison with former methods) has allowed to clarify and obtain new information on the household, material and spiritual culture of the population of the region. We should also mention the identification of the immediate materials of the circle of Corded Ware cultures and the Globular Amphora culture on the settlement, which allowed to reconstruct the process of transformation of Usvyat culture into the North-Belarusian culture in the region.

TH6-11 Abstract 04

Landscape and natural resources use in the 3rd mill BC by pile-settlements’ dwellers in NW Russia

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Keywords - 3rd mill BC, Neolithic, Northwest Russia, Pile concentration

Presentation Preference - Oral

During the field work in 2015, a test trench was excavated within the pile concentration, yielding for the first time information on the stratigraphic association of the timber constructions. Silty and multiple layered sediments rich in organic remains point to rather lacustrine environments, where the area was probably not a river bank but part of a shallow lake. Among the piles, several well preserved wooden fish traps have been found, indicating multiple uses of the shore area. First results of the analysis of botanical macro-remains have found charred seeds of water lily, adding new surprising evidence to the exploitation of aquatic plant resources in the Stone Age. Important new insights come from a pollen core, the first in this region, which shows several phases of intensified human activity at Veksa over the millennia that are correlated to phases of increased siltation and drying-up of the environment. Ongoing analyses of the documented features and the environmental data will yield new information on character and function of the wooden constructions and their association with cultural, economic and environmental developments.

The 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 woodland, plant and bone material, raw materials for pottery making. It remained the typical settlement pattern for over a millennium. The inhabitants of such settlements left a unique material culture with a particular toolkits and pieces of art.
The lower cultural layer contains over 30 concentrations of structures with well-preserved converted wood. Stakes and masses of splinters. Most structures were located in hollows of various shapes and sizes. The hollows may have been left over in form of new data to the prehistoric research of the region. The preliminary study of the evidence from the lowest waterlogged layers of Limnochori II, Anarghiri IXa and IXb dwellings built on water or by the shores, with a wide range of construction techniques exploited for flooring, 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, gathering 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, formulates a unique data set for the research of pile dwellings in Southeastern Europe and beyond.

### TH6-11 Abstract 07

**Characterization of activity areas in the early Neolithic site of La Draga (Spain)**

Author: Dr. Piqué, Raquel, Universitat Autònoma de Barcelona, Bellaterra, Spain (Presenting author)

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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-eastern 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. Intra-site 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-Buló, Universitat Autònoma de Barcelona, Barcelona, Spain (Presenting author)

Keywords: Early Neolithic, Iberian Peninsula, Pila-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. At this process is usually hidden for archaeologists, but its economic and social implications are of great relevance. The analysis of wooden elements had been carried out involving a wide range of different methodologies: dendrology, description of morphology, experimentation, tool-marks, use-wear and 3D modeling. In this work are summarized the result of the analyses of the architectural elements. We'll outline the main characteristics of the building process of the wooden constructions at La Draga, from the obtaining of the raw material to its use for architecture, through its elaboration process. The analysis of architectural elements (beams, posts, planks, framework, etc.) show in one hand the predominance of certain species of raw material, season of obtaining, diameters and supports selected. In the other hand it has been spotted certain predominance on the elaboration process. Finally, a few master lines of the construction structure have been spotted.

### TH6-11 Abstract 09

**Dry land and lakeside settlements in the region of Four Lakes at Amindon Basin (Greece)**

Author: Dr. Chrysostomou, Panikos, Greek Ministry of Culture and Sports, Florence, Italy (Presenting author)

Keywords: Western Macedonia, Presentation Preference - Oral

The surveys and excavations of the last years in Amindon region conducted by Florina Ephorate of Antiquities, resulted in the discovery of several prehistoric dry land and lakeside settlements dated from the late 7th to the late 2nd mil. BC. Some 31 new habitation sites were spotted in an overall area of 550 hectares, from which 15 sites were partially or totally excavated, covering an area of 25 hectares. From the preliminary overall approach of the excavational data so far yielded, the development of a unique culture in the region is documented, with an active contribution - especially during the earlier phases - to the neolithisation of Balkans, as part of the basic axis of populations and ideas mobility from the southeastern Balkans towards central and northern Europe. The location of the settlements confirms the special relationship that local neolithic communities developed with wetland environment, an interaction sustained with an impressive adaptive ability throughout prehistory. Even during Early and Middle Neolithic periods (mid 7th - mid 6th mil. B.C.) - as documented by the excavational data from the settlements Anarghiri XI and Anarghiri XIII and XIV - although some basic choices regarding the construction and organization of habitation's space refer to dry land occupation - the proximity of those settlements to the adjacent marshes necessitate the adaption of building techniques similar to pile dwellings. At late 6th mil. B.C. the occupation of the lakes and marshes' shores is intensified, resulting the establishment of several lakeside settlements. The most recent partial or total excavation of some of these and the investigation of extended destruction layers, numerous structural elements and artifacts of various organic materials, yielded new data to the prehistoric research of the region. The preliminary study of the evidence from the lowest waterlogged layers of Limnochori II, Anarghiri IXa and IXb dwellings 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, gathering 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, constitute a unique data set for the research of pile dwellings in Southeastern Europe and beyond.

### TH6-11 Abstract 10

**Ups and downs. Studying structural wood from the prehistoric lakeside dwelling Anarghiri IXb (Greece)**

Author: PhD Candidate Giagkoulis, Tryfon, University of Bern, Florina, Greece (Presenting author)

Keywords: Architecture, structural wood, Prehistoric lakeside dwelling Anarghiri IXb, Western Macedonia, Greece

Presentation Preference: Oral

The Rescue Excavations Project of Florina’s Ephorate of Antiquities at the coexisting zone of Public Power Corporation S.A. - Hellas (Amindon, Western Macedonia, Greece) has so far yielded substantial new evidence for the cultural development - from Early Neolithic to Late Bronze Age - of this region characterized by the presence of four lakes. Among the numerous finds there are a considerable great number of wooden elements belonging to structures preserved in the lower waterlogged deposits of several prehistoric settlements. Anarghiri IXb is a settlement inhabited since the early 5th millennium BC, was oval in shape and approximately 2.8 hectares in size, in the central part of which the archaeological layers are almost 4 m thick. According to the so far unearthed excavational evidence, the earliest occupation’s structures were built in immediate spatial relation to water with matching building choices 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 their spatial integration in the excavational grid with the use of GIS tools. Although the study is still in an early stage, the integration of data and the processing of data for the proper waterlogged 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 differencations in
TH6-11 Abstract 11

Wet, Wet, Wet: Neolithic wetland and lakeside settlements in the Balkans

Author: Dr. Naumov, Goce, Museum of Macedonia, Skopje, Macedonia (Presenting author)
Keywords: Balkans, Prehistoric wetlands, Neolithic, Settlements, Pottery

A research project focusing on Lake Degersøe in Southern Germany revealed settlement activity and land use in the hinterland of Lake Constance older than the onset of the pile-dwelling period at Lake Constance in the 40th century BC. The outcomes of recent archaeological and palynological explorations suggest new settlement sites and human impact dating back to the 5th millennium (see contribution of Männberger, this session). Within the tri-national project ‘Beyond Lake Villages – BELAVI’ palaeoecological on-site and off-site data from the Western Altgäu region are synthesised with archaeological records. The chronological basis and with all the related 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 Degersøe, 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 Degersøe comes from ash trees, and tree ring patterns show a cyclic settlement activity with repeated usage of small woodland plots with intermittent falls. Wood charcoal from cultural layers complement the spectrum of 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.

TH6-11 Abstract 12

Live and survive in prehistory on northern shore of Ohrid lake

Author: Todorska, Valentina, NJ Museum Nikola Neziobinski Struga, Macedonia (Presenting author)
Keywords: pile dwellings, tools, Pottery, Human remains, Wood charcoal

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palaeoenvironmental record for the research area; (ii) to enhance our understanding of landscape in terms of spatial networks (iii) to integrate palaeoenvironmental data sets with archaeological data. The research is conceived at three scales: (1) Micro-regional, to produce an accurate picture of the complete range of surviving archaeological features through intensive field survey; (2) Regional, incorporating LIDAR data and aerial photography to facilitate a systematic understanding of the archaeological landscape; and (3) Macro-regional, providing new socio-cultural, economic and ideological models/hypotheses that can be tested in subsequent disciplinary research.

TH6-11 Abstract 16

Beyond lake villages. Archaeological and palaeoecological research at Lake Burgäschi! Switzerland

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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 Landsedienkmalamt 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.

TH6-11 Abstract 17

Above the lakes – Organic finds from Bronze Age mines in the Alps

Author - Reischlert, Hans, Naturhistorisches Museum Wien, Vienna, Austria (Presenting author)
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Keywords: Mines, Organic material

Presentation Preference - Oral

Organic finds fascinate as they convey exceptional insights into prehistoric daily life and work routine. Organic objects make up the bulk (far more than 90%) of material culture in the period from the Stone Age to very recent times (19th-c.).

Aside from underwater and wetland sites organic materials such as wood, fur, skin, leather and textiles have also been preserved in considerable numbers in several alpine mines (e.g. Hallstatt, Mitterberg). Those ancient mine relics are fundamentally different from the objects we know from wetland and underwater sites in terms of taphonomy, functionality and above all research history. Those lost handles, lightning tapers, buckets, mining timber, axements 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 water bodies as certain materials that decay underwater are preserved in the mines. Furthermore the Hallstatt salt mines offer also important early Iron Age find inventories. This is of major importance on two levels: (a) the evolution of organic material culture from the Bronze to the Iron Age can be observed; (b) organic finds are far more rare in the European Iron Age than during the Bronze Age.

TH6-11 Abstract 18

News from prehistoric lakeside settlements in Austria

Author - MA Pohl, Henrik, Kuratorium Plähhauten, Attersee, Austria (Presenting author)

Keywords: Austria, Neolithic, pile dwellings

Presentation Preference - Oral

The most recent extensive survey undertaken in Austria and a small but successful study of the prehistoric lakesides settlements took place in the 1970s and 1980s. The inscription on the UNESCO list of World Heritage sites in 2011 provided the crucial impetus to resume the archaeological investigations and the associated protection measures. The Pile Dwellings Curatorship was tasked by the Austrian state authorities with coordinating the work and establishing systems of monitoring the sites. In 2013 a monitoring plan was developed with the aim of maintaining long-term observation and putting in place protection programmes; at the same time, archaeological investigations were mounted at the five Austrian world heritage sites on the list of “prehistoric pile dwellings”. Now, three years later, a first-up to-date inventory is available, which will allow us to implement concrete protection measures beginning in 2016. Additionally we have got some new data as a result of our research. A new research programm has been started with an underwater excavation in Lake Attersee in 2015.

TH6-11 Abstract 19

Wet worlds in context-The Bronze Age pile dwelling of Must Farm in the East Anglian Fens (UK)

Author - Huisman, Floor, Durham University, Durham, United Kingdom (Presenting author)

Keywords: Contextualising wetland living, East Anglian Fens, Must Farm pile-dwelling

Presentation Preference - Oral

The recent discovery of the Bronze Age site of Must Farm in the former wetlands of the East Anglian Fens opens up a new chapter in pile-dwelling research in the UK. Older than the artificial Iron Age islands known as ‘crannogs’ found in Scotland and Ireland, Must Farm consisted of typical Bronze Age roundhouses built on stilts above a former channel of the river Nene. Burnt down at the end of its lifespan this site has been extraordinarily well-preserved. Consequently, Must Farm (dubbed the ‘Pompeii of Britain’), provides an unparalleled snapshot of later Bronze Age life and human-lake interaction in the Fens. Moreover, the discovery of this wetland settlement in the ‘deep fens’ beyond the fen edge requires a reconsideration of the later prehistoric Fenland narrative.

Although the extraordinary findings from Must Farm are important in their own right, it is crucial that this site is placed within its wider spatial and temporal context. This is also true for other pile-dwellings in Europe. To some extent, all pile-dwellings are ‘unique’ (mostly due to their wet location and the level of preservation at many of these sites), but they should not be studied in isolation. Indeed, to better understanding pile-dwellings, they must be compared with other types of wetland settlements. More importantly, nearby dyndal settlements areas should also be considered. Only then can we study the origin of pile-dwellings, better understand their inhabitants’ lifeways and their interactions with the environment. This paper will discuss these issues by introducing Must Farm and placing this site in its wider regional, national and international context.
TH6-11 Abstract 21

Pots, pans and dishes to understand food
in a pile-dwelling Neolithic society

Author - Dreau, Léa, CEPAM UMR 7264, Nice Cedex 4, France (Presenting author)
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Presentation Preference - Oral

Traditionally, pottery use has been discussed through morphological characteristics and mechanical properties of the vessels (Rice 1987) but amorphous organic residues analysis has also greatly contributed to understand exploitation of natural resources during the Neolithic period (Evershed 2008). Nevertheless these methodologies are rarely combined due to the high fragmentation of pottery and to the impossibility to link ceramic content with specific shape. At the site of Clairvaux XIV (Middle Neolithic, NMB - 3900-3700 BC), the large and diversified corpus of ceramic vessels (377 vessels with restituted profiles) combined to anoxic condition favoring lipids preservation offers a unique opportunity to investigate the use of pottery to better understand lake dwelling Neolithic society (Pétrequin et al. 2015).

The corpus was first classified based on morphological and morphometric criteria. Chemical analysis of the lipids preserved on the pottery was then carried out using an analytical strategy combining chromatographic (HT GC), spectrometric (HT GC-MS, NanoESI MS and MS/MS – Mirabaud et al. 2007) and isotopic (GC-C-IRMS) techniques. The data obtained on 95 pottery conducted to: (i) the identification of a broad diversity of commodities processed in the vessels, mainly from animal origin; (ii) the establishment of clear relationships between content, traces of cooking, shape and volumes of the vessels.

This study highlights some characteristic consumption pattern of the Neolithic people living at Clairvaux XIV in the first half of 5th millennium BC. First, a clear difference is observed between cooking pots and serving vessels. Dairy substances were significantly used in all category of ceramics but small individual vessels seem to be especially dedicated to the consumption or transformation of these high value products. The surprising low representation of fish and vegetable products may be due to the low fat-content of cereals and to the fact that lake resources were processed and consumed without using ceramics (grilled, dried etc.).

In conclusion, the present study underlines the potentiality of amorphous organic residues analysis to the study of pottery from lake dwelling Neolithic sites.

TH6-11 Abstract 22

Micro-economic and socio-cultural networks in lake-side settlements

Author - MA Spring, Markus, Zurich University, Oetwil am See, Switzerland (Presenting author)

Keywords: Neolithic-Bronze Age, Network analysis, Settlement archaeology

Presentation Preference - Oral

Urban morphologists are investigating the ‘genetic code of cities’, laws according to which modern cities emerged and grew. They have identified socio-economic processes that activate the act of building which in turn shapes urban space. The emergence of spatial pattern is seen as determined for the evolution of configurational networks. These networks, together with spatial agency of territorial movement, the flow of people to meet and interact, have a significant impact of演变 and uses in modern cities. Observing these processes through micro-economically motivated «fingerprint» networks encourages the emergence change in ‘generative’ uses, such as retail, while movement-poor socio-culturally influenced background networks form ‘conservative’ residential areas.

Lake-side settlements, on the other hand, are – quite similar to space stations – built into for human habitation basically hostile environments. Swamp-borne diseases posed constant health risks. And fluctuating water or seasonal flooding asked for structural solutions to still allow human activities and interactions despite adverse conditions. The paper takes up the idea of the ‘genetic code of cities’ to look into network patterns of Neolithic and Bronze Age lake-side settlements. It explores the influences these specifically designed structural solutions required for life at, on, in or above water and marshlands had on human movement and interactions. Did these settlements under such environmental conditions follow the same spatial growth laws as modern cities? And, can such micro-economic and socio-cultural network analysis be a tool for interpreting cultural remains or functions of pile dwellings?

TH6-11 Abstract 23

A new look to late Neolithic plant economy
from the site of Parkhaus Opéra (Zürich, Switzerland)

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Keywords: archaeobotany, GIS, sampling strategies

Presentation Preference - Oral

Archaeobotanical research in the Alpine Foreland has a long tradition. Abundant quality data have been produced since the seventies of the 20th 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 lake-shore settlements with paleo-economical aims (e.g. characterizing past agriculture and gathering practices, as well as diet) was only possible through the systematically-taken surface samples of large volume (ca. 5 L).

With an optimal sampling strategy was conducted at the recently excavated late Neolithic layers of the site of Zürich-Parkhaus Opéra. Layers 13 and 14 date to the years around -3160 BC and -3090 BC respectively. Layer 13 was preserved over a surface of 3000 m². Layer 14 was documented in more or less good preservation in a smaller area of around 1000 m². A systematic large-scale sampling strategy was conducted and a new method of analysis was developed for the data. The analysis was conducted through two large samples: around 3000 m² and around 1000 m². 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 paleo-economical evaluations of large-scale excavations in wetland settlements.
TH6-11 Abstract 24

**Settlement dynamics and mobility in Late Neolithic Southwest Germany**

**Author:** Kaiser, Mirjam, Universität Freiburg, Freiburg, Germany (Presenting author)

**Keywords:** Late Neolithic, pile dwellings, settlement system

**Presentation Preference:** Oral

The pile dwelling site Bachewiesen I (Bad Buchau, Kr. Biberach) located at the Federei fen in Baden-Württemberg, excavated in the years 2005 and 2011, can be assigned to the Late Neolithic. This culture 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 wetlands sites.

To understand the possibilities and limits of such a model it is necessary to discuss which aspects of life can not be traced in the archaeological record and are forced to remain in the dark. Nevertheless important factors of how life is functioning among human groups can be hidden there. E.g.: Little do we know about what happened on the mineral soil during the same time.

In a first step a comparison of settlement structures, their duration, subsistence strategy, management of resources and the distribution of material culture characteristics in Upper Swabia will be made. In a second step the comparison will be enhanced down to Lake Constance in the South and up to the Neckar area in the North.

Such a model gives an important opportunity to address specific questions in order to get a clearer understanding of the way of life of past people. How are the humans adapted to their surrounding? 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 Swetschemulden Culture?

The presentation will give an insight in the current state of this PhD project and discuss the preliminary results.

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TH6-11 Abstract 25

**Bronze Age pile dwellings in Northern Italy: chronology, environment and architectural features**

**Author:** Dr. Baioni, Marco, Museo Archeologico della Valle Sabbia, Gavardo, Italy

**Co-author(s):** Mangani, Claudia, Museo archeologico G. Rambotti, Desenzano del Garda, Italy (Presenting author)

**Keywords:** Cultural interactions, northern Italy, pile dwellings

**Presentation Preference:** Oral

In northern Italy the widest spread of pile-dwellings took place between the 22nd and the 15th century B.C., during Early and Middle Bronze Age and endured till the first phase of Late Bronze Age (13th century), with a considerable difference with situation North of the Alps. From around 2050 cal BC, we assist to the spread of pile-dwellings, mostly around the Lake Garda and its morainic amphitheatre, but also in the lakes of the inner areas of the Barii and Euganean hills. This period is therefore characterized by strong cultural changes and radical reorganization of settlement patterns and socio-economic systems. Some recent excavations allows us to follow the technological and cultural evolution of the communities living in the area and to identify the development of the architectural techniques. This study of findings shows how long distance interactions and cultural relations with Western, Central and Eastern Europe. Interestingly, the motif of the connection between Varose 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 these we can build a true-to-life reconstruction of these communities. The study of the finds and the data obtained from multidisciplinary researches shows us an economy based on a settled down agriculture and breeding farming. Craftsmanship becomes more organized and integrated in the communities only starting from Middle Bronze Age. Subsistence economy mainly bases on cereals agriculture; hunting and fishing constitute a part of the diet, integrated with harvesting of spontaneous fruits. The abundance of cornels, hazelnuts and acorns shows how the inhabitants of the pile-dwellings intensively exploited the areas around the villages.

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TH6-11 Abstract 26

**Osseous artifacts from the prehistoric lakeside settlements of Amündeon, Western Macedonia, Greece**

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**Keywords:** Prehistoric, lakeside settlements, 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 Amínédion basin that date back from Greek Early Neolithic (~6800-5800 BC) to Greek Middle Bronze Age (~2020/1000-1600/1000 BC). The excavation of these sites yielded an impressive and diverse assemblage (more than 4000) of bone and antler artifacts which shows that, as in the prehistoric lakeside settlements of Central Europe, the osseous artifacts played an important role in the everyday activities of the inhabitants of the wetland sites of the region. In this short paper, there will be an attempt to present the osseous artifacts of some of these settlements.

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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 a hand auger coring at the site area and immediate surrounding and radiocarbon dating of organic deposits and different ancient artefacts and constructions’ remains. It testifies that the site was established on the open surface not covered constantly by water. It is an important observation for understanding cultural layers’ formation and process of cultural remains deposition, as well as depositional processes of sedimentation on this place. Several zones with artifacts and ecofacts in situ were uncovered at the site - they were: nuts, fish bones, shells and other materials, not mixed, which occasionally and intentionally were accumulated in pits or garbage heaps, nearby preserved remains of dwellings. They could be interpreted as open production areas. Inside the remains of wooden constructions, sandy platforms for fire-places were recorded - remains of all year production areas, which were deposited in another manner.

We could also suppose a much higher erosion of the upper cultural layer, where material was admixed by environmental factors during milieu changes (lake’s regressions/transgressions) in the process of its deposition. Here we can trace clay penetration and materials accumulation around wooden piles, fragmentarily of artifacts, and homogenous distribution of material within the cultural layer.

Other cultural layers and other organic remains were uncovered at the site Serteya I, with fishing constructions synchronous to Neolithic pile-dwellings. Thin interlamimations, 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.

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TH6-11 Abstract 28

**Geophysical prospection of submerged Neolithic settlements in Lake Sennitca (Pskov Obl., NW Russia)**

**Author:** Dr. Lorenz, Sebastian, University of Greifswald, Greifswald, Germany (Presenting author)

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**Keywords:** geophysics, Neolithic, Sennitca

**Presentation Preference:** Poster

First archaeological sites on the bottom of Lake Sennitca (13 km², 148 m a.s.l.), located in NW Russia on the border with Belorussia were uncovered in the 1970s. These lacustrine sites, dated to the 4th-3rd mill BC, were located along the shore of small lake basins and rivers distributed on the recent lake bottom. They comprise the first settlements of LBK communities in this region, prehistoric pile-dwellings, and the eastern most megalithic construction of the 3rd mill BC known so far in Europe. Lots of unique
artifacts were found here, among which a wooden Neolithic ski, wooden zoomorphic figures, bone flutes etc. However, during last 20 years the cultural layer on the bottom of the lake was either destroyed due to lake-level drawdown or buried under modern lake sediments. Another particular feature of this lake is its zero visibility caused by shallow bathymetry and high nutrient loads which makes any common archaeological prospection even more difficult.

In order to find further traces of archaeological constructions and cultural layers a range of remote sensing and geophysical methods, both underwater and on the peat bog shore were applied. For magnetic prospections on the peat-bog shore of the lake we applied the highly sensitive total field caesium-magnetometer (1.01 nT) in a variometer configuration. Combined with a high spatial resolution (sampling rate of 12.5 x 25 cm) the results allow us also to detect the weak magnetic signals of archaeological structures of wooden constructions such as rows of post or parts of post-build houses, fish-traps, but also very clearly the traces of paleochannels and the typical strong magnetic anomalies which could be ascribed to ancient fireplaces or kilns.

Supplementing the archaeological underwater surveys three sites in the littoral fringe have been investigated by dense side scan sonar tracks with varying frequencies (80/200 KHz). The sonar mapping revealed details in lake bottom morphology, which is is recently enveloped by soft sediments as well as the precise distribution of ancient stone and wooden constructions on the sites. These prospections not only allowed us to reconstruct in details paleolandscape, precise distribution of ancient stone and wooden constructions on the sites and to define and to locate the places for further excavations but moreover provides us a comprehensive approach to the site.

... TH6-12 Abstract 01
Ritual continuity and changing monuments
in the southern Sperrin Mountains, Northern Ireland

Author - Dr. Brogan, Caithion, Queen’s University Belfast, Belfast, United Kingdom (Presenting author)
Keywords: Neolithic, Bronze Age transition, Northern Ireland, Ritual landscapes

This paper argues that there was a surprising degree of spatial stability between Neolithic and Bronze Age ritual landscapes in Northern Ireland despite substantial changes in funerary/ritual practices. The southern Sperrin Mountains form the largest mountain range in Northern Ireland, stretching across the north-west of the country. Glacial activity during the last ice-age has created a landscape of rolling mountains cut by deep glens. Today the upper slopes of the mountains are largely uninhabited as the spread of blanket peat has pushed settlement down into the foothills, with the often barren and windswept uplands reserved for the seasonal grazing of cattle. It would, however, appear that these mountains were not always so desolate.

During the course of the Irish Neolithic substantial anthropogenic changes occurred, as people began farming the land and constructing megalithic tombs in which to bury their dead. These tombs are often regarded as being linked to ideas of ancestor veneration, where the remains of the deceased symbolically tied the community to the land they had invested in. Landscape analysis of the Sperrin Mountain reveals particularly high concentrations of Neolithic burial activity, suggesting that this may have been perceived as a ritual landscape.

The advent of the Bronze Age sees profound cultural changes throughout Ireland and evidence from a recent genetic study has even indicated that there was a significant migration of people into Ireland (Cassidy et al. 2006). Within the funerary/ritual sphere, megalithic burials are gradually abandoned as burial within cist and pits becomes more prevalent and new ritual
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 Serrini Mountains, however, suggests that, despite these dramatic cultural changes, there is a remarkable degree of spatial continuity between the Neolithic and Bronze Age ritual landscapes. While the face of ritual may have changed, the overall evidence indicates that the perceived ritual significance of the land endured.

TH6-12 Abstract 02
Viking-Age landscapes in the longue durée: change, continuity, and perceptions of place

Author - Dr. Leonard, Alison, University of Cambridge, Cambridge, United Kingdom (Presenting author)

Keywords: Landscape, Portable material culture, Viking Age

Presentation Preference - Oral

It is no simple task to assign dates to a landscape. In England, however, metal-detected artefacts recovered from rural contexts provide valuable benchmarks that bring chronological narratives of settlement and activity to light. This can be used to highlight specific ‘moments of crisis’ within narrow timesframes, such as the reduced circulation of coins in certain parts of England during the early Viking Age. When viewed from the perspective of the longue durée on the other hand, it often illustrates that despite centuries of political change and large-scale migration, many places were continuously selected for.

Through case studies in eastern and midland England, this paper explores instances of change and continuity in the rural landscape. Looking backwards and forwards from the Viking Age, when visible shifts in settlement would be anticipated, the evidence reveals notable patterns and curious anomalies. Proximity to Roman roads, for example, is a shared trait across the case studies, but why does treatment of other Romano-British structural features appear to differ so widely? Drawing upon a range of supporting evidence such as place-names and environmental data, and looking at the artefactual and landscape evidence within a number of shifting chronological frames, it is suggested that certain discontinuities and continuities can be explained with reference to the evolving agrarian economy. Conversely, the influence of antecedent features such as barrows and structural remains on successive communities requires alternative explanations. It is suggested that in these cases, their integration or avoidance was contingent upon the ways in which communal memories and local perceptions of place were transferred.

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 our image of how we relate to the sea and to associated maritime activities and industries in the present, technological and scalar differences resulted in alternative responses to these activities in other areas.

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. Ignored by the 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 as manure are amongst the most obvious uses.

The character and status of the ways to the shore are similarly significant in betraying their former purpose. Some survive only as footpaths, some as tracks leading to individual farms, and others have been transformed into public highways. In this respect, map regression techniques, particularly when allied with GIS, provide a powerful means of gathering and presenting the information.

TH6-12 Abstract 04
Multidisciplinary data-crossing about settlement and land-use in Jura mountains (5th-17th c.)

Author - PhD student Chevassu, Valentin, MSHE Ladou; Université de Bourgogne-Franche-Comté, BESANCON, France (Presenting author)

Co-author(s) - Gauthier, Emilie, UMR 6249 Laboratoire Chrono-Environnement, BESANCON, France

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TH6-12 Abstract 05

Author - PhD student Bougaignon, Claire, University Blaise Pascal Clermont-Ferrand II, Dijon, France (Presenting author)

Keywords: Diocese of Clermont, Mendicent Orders, settlement Processes

Presentation Preference - Oral

In 1662, the American historian R. Emery (p. 5) defined the French 13th century as “the golden age of the [mendicant] friar,” a hypothesis developed later by the French historian J. Le Goff (1968) in a programme dealing with the relationships between Mendicent Orders and medieval cities. Archaeological and historical surveys and archaeological studies in cities particularly in Aquitaine (Martin, 1976) or in Aloscia 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 (Voit, 2003) or the south of France (Gabry, 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 Mendicent Orders in urban spaces through the example of the cities in the diocese of Clermont (Auvergne, centre of France) during the 13th-15th centuries. This is a multidisciplinary approach based on a cross-checking of archaeological, architectural and historical data. It focuses on the reasons why the Mendicants decided to instal in specific places in close to the city, particularly for political, economical and social reasons but also due to topographical constraints. It also demonstrates the prevailing reasons for settlement could change according to periods, cities and established urban landscape (e.g. re-use of religious buildings). Thus, this paper sheds light on the study of long-term religious urban landscape in medieval cities.
Can humans change their spots? Site location patterns in mid-to-upper Paleolithic Cantabrian Spain

Author: Javier, Ordoño, University of the Basque Country, Vitoria-Gasteiz, Spain (Presenting author)

Keywords: Late Middle/Early Upper Paleolithic, Settlement patterns, GIS, Spanish Cantabrian region

Presentation Preference: Oral

Research on the European Middle-to-Upper Paleolithic transition has mainly been devoted to issues of long-standing interest like human anatomy, artifact technology, economic strategies, symbolism, or, more recently, genetics. By contrast, other aspects of the archaeological record still require further attention, particularly research on landscape perception and use. As a result, very little is actually known on the decisions and conditions that led Late Middle Paleolithic and Early Upper Paleolithic human groups to settle and move back and forth across the geography in this paper, a pilot approach to investigate this issue, we aim to explore how settlement patterns changed or persisted in a quite constrained and archaeologically rich area, the Cantabrian region (northern Spain). To this end, pancographic analysis has been undertaken on a total sample of 94 sites showing human use in a time-lapse spanning more than twenty millennia (ca. 45 to 22 ky cal. BP) - coincident with the so-called Late Mousterian, Chatelperronian, Spanish Mousterian and Gravettian cultures. The study integrates the spatial analysis of different variables relating to factors like topography, geology, hydrography and habitability that are examined and calculated with the help of modern tools, mainly GIS. Results are statistically treated and compared with other archaeological and environmental data, showing a complex pattern where diversities in settlement patterns through time can sometimes be evident or not, depending on the variables analyzed, and may reveal different - and not necessarily evolutionary - strategies for the peopling of a changing environment. After all, landscape use has always been about decision-making.

The structuring of the Adriatic littoral landscape between Atia and Altinum during Roman times

Author: Dr. Matteazzi, Michele, Catania Institute of Classical Archaeology, Vicenza, Italy (Presenting author)

Keywords: Landscape Archaeology, Roman Archaeology, Roman Venetia

Presentation Preference: Oral

The Upper Adriatic littoral zone stretching between the ancient centers of Altinum and Atia (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 northeastermost part of the great delta of the river Pacus (that reached Ravenna, to the South, and Altinum, to the North) and, above all, the zone located to the East of the Municipium of Atia where the river itself flowed to the sea with more branches, a wide marshland called Septimia Maria (i.e. “the seven seas”). Furthermore, we know that in this stretch of plain the river Athes (Adige), Mediacus (Brenta), Retano (Bacchiglione) and Togisuron (Bovolentana channel) flowed and mingled their waters with Po ones, together with Isceus (i.e. “canals”): Otricoli and Philistina, two artificial waterways that formed part of an inland waters shipping route that linked Ravenna and Atia: the existence of such a route is documented by Strabo after his sources (5.2.5, 222C). In the Roman Late Republican period the critical phases are to be connected with protracted intense rainfalls and with the impact of anthropic activities on the territory (e.g. the Roman colonization in the 2nd and 1st cent. B.C., the upkeep or collapse of the countryside drainage systems, etc.). In a period characterized both by sea level rising and by the absence of drastic climatic changes, the coastal evolution was most probably due to anthropic causes. In North Western Tuscany (ancient Etruria) landscape dynamic transformations, due both to natural and anthropic factors, and phenomena of persistency, resilience onthogonic durée are studied in a long term perspective. In this district multidisciplinary researches provide evidence of coastal progradation and erosion, palaeo-environmental changes, water management practices, rural and urban landscapes, manufacturing activities. Significantly, the complex hydrogeological evolution of the Pisa-Lucca territory and the long term human actions aimed at optimizing the rivers regime were already perceived by the ancients, as documented by Strabo after his sources (5.2.5, 222C). In the Roman Late Republican period the critical phases are to be connected with protracted intense rainfalls and with the impact of anthropic activities on the territory (i.e. the Roman colonization in the 2nd and 1st cent. B.C., the upkeep or collapse of the countryside drainage systems, etc.). In a period characterized both by sea level rising and by the absence of drastic climatic changes, the coastal evolution was most probably due to anthropic causes. Among these, the main elements were the construction of new towns and settlements, deforestation and increased agricultural and manufacturing activities connected with the deduction of colonies in the early 2nd cent. B.C. and in the late 1st cent. B.C., in particular with the organization of their territories (pantmetrical and land allotments). The continuous natural transformation of the fluvial route was also followed by a terrestrial one remembered by Tabula Peutingeriana, which also mentions the main stations which marked its track: this road was a coastal itinerary parallel to the innermost one followed by the Via Popilia, a consular road built in 132 BC as a direct connection between Ariminum (Rimini) and Aquileia linking all the important port centers of the Upper Adriatic coast such as Ravenna, Atia and Altinum.

Therefore, paying attention to all these elements, the paper aims to investigate the complex relationship man-landscape, which was established in the area during the Roman period ranging from the 3rd century BC and 6th century AD). In this landscape archaeological approach and through an integrated reading of all the available archaeological, historical and paleoenvironmental data, the final goal we want to reach is double: on the one hand, to identify the environmental factors that both favoured and conditioned the Roman occupation of the territory; on the other hand, to come to a better understanding of the forms this occupation took, and of its actual effects on the natural environment.

Where did all the power go? The rise and fall of the big harbour town of Aquileia

Author: Michielin, Lucia, University of Edinburgh, Edinburgh, United Kingdom (Presenting author)

Keywords: Aquileia, discontinuity, Late Antiquity

Presentation Preference: Oral

The aim of this presentation is to track the rise and fall of the harbour town of Aquileia. The town, founded in 181 BC around 10 km away from the Adriatic sea on a meander of the Natisa river, stands as a perfect example of a once really strong and powerful town that fell into nothing after the end of the Roman Empire.

The socio-economic status of the city reaches its peak starting from the Theocratic period: as a matter of fact with the DIOCLETian and Constantienian reformation she received officially the title of capital of the Veneti at Histria region. Moreover, her proximity with the newly Imperial Capital (Mediolanum) put her in a political circuit of primary importance; providing her a role of cultural and administratively complementarily in respect of the capital. Her new role granted her a primary importance spot within the Imperial agenda, firstly in relation with the Dacian times patrol but most of all as a bridge-head between northern and southern trade routes. This prosperity eochys in the urbanist evolution both from the point of view of public and private dwellings.

Two centuries after, all of this was not there anymore and the town itself was reduced to a third of its original size. Moreover the new city wall (after the half of the VI Century AD) excluded not only the forum but also the harbour that was the symbol of its imperial agenda, firstly in relation with the Danubian limes patrol but most of all as a bridge-head between northern and southern trade routes. This prosperity eochys in the urbanist evolution both from the point of view of public and private dwellings.

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How did it happen? Clearly the temptation of giving all the blame to the barbaric invasions and mainly to the supposed conquest of the town by Attila (VII AD) is strong, but with this paper I will go beyond these single events trying to track those long durate factors that lead one of the greatest Italian cities of late antiquity to become little more than a village. Even its own name was recalled in the sources just in relation with its desertedness or as a moment of the unpredictability of fortune. These factors have been both natural (mainly the decrease in the flow rate of the river Natis) and anthropic (mainly the changes in the power balance of the Roman Empire, the transfer of the capital to Ravenna in 402 AD).
illtoral and the hydrologic evolution affected the North Western Etruria sea- and river ports and landing places scattered along the coastline in Antiquity and in the Middle Ages. The Roman road network was constructed on stable soils in the coastal strip and in the main river valleys in the frame of a strategic plan. A post-medieval interesting case study is the coastal plain NW of Pisa. Here since the 15th Century several plans aimed to reclaiming a large swampland South of the Massaciuccoli lake were made but not achieved. In 1653 an attempt was made by the Dutch Van der Breecht, who built a few windmills in order to raise the land. The coastal progagation came to end around 1800, the Arno-Serchio rivers solid transports being diverted from their destination to the sea in swamp filling areas in the frame of the systematic land reclamations pursued by the Lorena. That caused the erosion of the Arno delta since the end of the 19th century. The present courses of the Arno and Serchio rivers result from complex natural transformations and anthropic actions taken over the centuries, ranging from the straightening of river segments and the draining of stagnant waters to the construction of embankments, dikes, cause di colmata and the building of canals to divert flood waters.

TH6-12 Abstract 10

Prosper in Valley, Hide in Mountains: Dynamics of Settlement in Ljubuški (Bosnia and Herzegovina)

Author - Dzurdzic, Tomaz, 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 Trebižat river valley and its surrounding highlands and mountain ranges, a geographically well- defined microregion which today constitutes the modern community of Ljubuški in West Herzegovina. The lay of the land, just a mountain range from the sea coast and with good connections through river valleys and passes with the highlands inland, is such that throughout its history it was the border and contact zone of different cultural, economic and political entities and systems. In antiquity this area was the close hinterland of Narona, a major city of the region. Not only was it important for the subsistence of the city’s population due to the rich agricultural land and the 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 invasion and resolute 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 hilforts 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.

TH6-12 Abstract 11

Comparing cultural transmission patterns in southern Poland during the Bronze and Early Iron Age

Author - MA Dziegielewski, Karol, Jagiellonian University in Cracow, Kraków, Poland (Presenting author)

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Keywords - Bronze and Early Iron Age, cultural diversity, cultural transmission

Presentation Preference - Oral

In our paper we want to show the methodology and preliminary results of the ongoing project addressing the question when, and in what circumstances, the culture of past societies was determined by such factors as vertical (inter-generational) and horizontal (inter-population) transmission of cultural attributes, and when the decisive role was played by the adaption to local environment. Several well-investigated settlement regions in southern Poland, intensively occupied for a long time and representing various ecological zones and landscapes (Western Malopolska Lowland, the upper Vistula valley, the Carpathian Forestland, and the West Carpathians), were chosen to test the role of these factors. We apply the comparative method (using standardised data and a set of ‘middle range’ theories) to analyse similarities and differences. The list of variables we included contains: time (the pace and synchronicity of change in particular test areas), space (communication factors in inter-population transmission), environment, with its natural and anthropogenic transformations in time, stylistic diversity in manufacturing traditions, organisation of settlement area (at the site and micro-region levels), access to resources, and social hierarchies and relationships. The data are examined using statistical tools, e.g. multidimensional techniques of data exploration, and – in case of stylistic studies – compared with the phylogenetic model. The next stage must cover establishing the nature of identified correlations and identification of potential causal relations.

This way we will explore whether cultural diversity is similar – as proposed by the cultural-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 adaption to local ecological niche, as adaptationists propose?

TH6-12 Abstract 12

Pastoral Nomads’ Use of the Semi-Arid Syrian Landscape c. 1810-1760 BCE: A GIS Projection

Author - PhD Josephson Hesse, Kristina, Uppsala University, Uppsala, Sweden (Presenting author)

Keywords: GIS, MB Syria-Mesopotamia, Pastoral Nomads

Presentation Preference - Oral

Hundreds of Akkadian clay tablets, derived from archaeological excavations at the palace of Mari by the Euphrates, clarify the strong integration 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, with the focus on the former, based on the economics of food-producing, exchange, trade routes, and sites such as caravanserai and mercant. Not only are the connections between these groups of essential importance; but also their ways of interacting with the surrounding environments.

The paper deals with the first step of methodology of network studies in this project, which is to map known sites into GIS together with trade routes, landscape features, suggested tribal territories, natural resources, and some remains (e.g. systems of caims, corrals, kites) registered in the Syria-Norwegian Palmyrena project that I have been a part of. The structured location of several hundreds Bronze Age caims, distributed on strategic hiltops and west outlets, in the mountain range outside the ancient trading centre of Palmyra in Syria, indicates that in addition to have been burial chambers these caims were secondary used as landmarks of territories and routes for trade and migration of pastoralists with their flocks. The landscape image will constitute the base for my further studies of networks and descriptive connections or relationships between people and tribes with places, trade routes, migration patterns etc.
How did the construction of such buildings transform the landscape and its perception by its hosts, the inhabitants but also their patrons? I will attempt a broad contextual comprehension of this question by considering if and how road caravanserais engaged in binding together the landscape and creating a distinctive cultural landscape. My approach wishes to inform the understanding of the ways in which different road caravanserais’ construction programs can shed light on how landscape, patronage and power were organized and developed within different Middle East contexts. In this presentation, in fact, I will compare medieval Anatolia and mediaeval Syria and will investigate how the construction of road caravanserais changed the landscape in these two regions. Did it change in the same way? What are the similarities and differences?

TH6-12 Abstract 14
It’s always the same old story... or not?
The ‘changing’ landscape of Cappadocia (Turkey)

Author - Dr. Turchetto, Jacopo, University of Padova, Padova, Italy (Presenting author)
Keywords: Cappadocia, Turkey. Local scale vs. macro-regional scale. Road networks and settlements’ patterns
Presentation Preference - Oral

During the course of the centuries, and especially from the Greco-Roman period to the Seljuk times, Cappadocia represented one of the most important huts and crossing-points of the Anatolian peninsula. Within that chronological framework, it acted as a cultural, economic and political bridge between East and West of both the classical and the medieval world. For those reasons, taking into consideration the interactions occurred between man (with different needs in different periods) and the landscape (which remained almost the same through time), Cappadocia offers a great variety of ‘food for thought’.

In this paper, I will focus on three different geographical sectors of Cappadocia, each one characterised by its own specific natural features: a) the semi-flat belt between Colonia Archelais/Aksaray and Caesarea/Küçüksel, next to the course of the Kızılırmak river; b) the area comprised between Colonia Archelais/Aksaray and Tyana/Kemërhisar, with the volcanic groups of the Melendiz Dağları, Hasan Dağ and Göllü Dağl, and the fertile plain surrounding them; c) the mountainous area between Tyana/Kemërhisar and Melendiz Dağları, at the foot of the Taurus chain.

In this context, archaeogeological and topographical evidences point towards the existence of settlements’ choices and itinerary patterns of longue durée. However, when examining the matter at a more local scale, what clearly emerges is that (in certain areas, at least) some changes took place throughout time. Towns or villages were abandoned and replaced by other ones; stretches of roads were no more maintained and fell into disuse; previously exploited areas were for many less attractive 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
Archeogeography of a border: the roman Limes system in south Romania (frontier, roads, landscape)

Author - Fajon, Philippe, Ministère de la Culture, Rouen, France (Presenting author)
Keywords: 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 Limes Alaman and Limes Transalutanus. 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 fonctional difference, or both.

Using in the same time many data from different sources origins (topography, geology, hydrology, morphology, topology, village and road network, archaeological settlements), we will try to explain that none of these proposals is the right one. It’s necessary to consider both Limes as a complex system, with a triple function to create a virtual space between Roman Empire and foreign country, to put a physical limit in a dominant situation, and to organize trade and circulation behind and along the border.

In this case, this organization is in full adequation with all the contraints. The territory of this sector is very specific, including a wide valley with a quite regular slope in the West and a high cliff in the East, before the plateau. The valley is occupied with wetlands and marshes.

TH6-12 Abstract 16
The Impact of Water on Settlement Development in Western Europe

Author - Donnelly, Harriet, The University of Sydney, St Leonarda, Australia (Presenting author)
Keywords: early medieval, settlement patterns, water systems
Presentation Preference - Oral

The establishment or development of any settlement will require a reliable supply of fresh water. The vital nature of this resource creates a 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 Londonium/Ludense experienced a significant transition from their previous urban layouts, while others, including Cordoua, 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, Erchin, Buzludzha, 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 unidentifiable. 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, from the frame of our doctoral research, in the inventory records of museums (Antakya Arkeoloji Müzesi, Istanbul Arkeoloji Müzesi, Muzieum du Louvre, Princeton University Art Museum, Worcester Art Museum) and of a local private collection (Ovula Особняк Касимова). Furthermore, we examined reports, diaries, field notebooks, maps, plans, drawings and sketches of the aforementioned excavations in the Visual Resources Collection of the Department of Art and Archaeology of Princeton University. We have thus been able to draw the topographical context to which the grave stones originally belong.

In this paper, we will present main results of our study concerning the grave stones that we led in pursuance of delineating the city limits. We will demonstrate by using visual materials how they concentrated in periphery of Antioch on the Orontes.
The landscape of iron production – from prehistory to the Early Modern Period in present-day Latvia

Author: Dita, Audina, University of Latvia, Rīga, Latvia (Presenting author)
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Co-author(s): – Rundberget, Bernt, Oslo University Museum of Cultural History, Oslo, Norway
Co-author(s): – Donia, Inga, University of Latvia, Rīga, Latvia
Keynote: landscape, iron production
Presentation Preference: Poster

Since the first successful attempts to produce iron, this activity has affected the landscape around it through the extraction of recourses, requiring infrastructure and creating pollution. However, the existence of iron production has been strongly dependent on the landscape, its resources and the possibilities for connecting with surrounding communities.

This paper will explore agency in iron production and its landscape, as well as changes through time in present-day Latvia. The earliest known archaeological remains of iron production in the study area are from the 2nd-4th century, when the success of production was directly dependent on the landscape. By contrast, iron manufacturing in the Duchy of Courland (15th-18th century) was an important factor in the process of transformation of the landscape. By using an inter-disciplinary approach of archeology, history and natural sciences, the changes in landscape-production agency will be analysed.

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 my doctoral research. The region had a crucial strategic position for the Empire, enabled by central location and good connectivity through natural passages and major roads. The good communication network also enabled a highly-developed trade system and exploitation of resources, especially ore deposits. Its cities were hubs of political and economic power, as well as cultural and ecclesiastical centres.

An older theory, still held in regional scholarship, is that the marauding raids of the various barbarian groups had a devastating effect on LateAntique 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 Konjuh in the Republic of Macedonia) to challenge the notion 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 Konjuh in the Republic of Macedonia) to challenge the notion and establish that the cities became more militarized and actively involved in the imperial defence. 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 literary erased from the face of the earth due to massive water erosion that destroyed predominantly wooden architecture.

In 2009 extensive and intensive archaeological field surveys took place in the area. In 2014 and 2015 also trial trenching of 25.5 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 channals’ 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.

Can We Observe Continuity?

Phenomenon of Medieval and Post-medieval Rural Settlement Abandonment:

Author: Dr. Holata, Lukáš, University of Exeter, Exeter, United Kingdom (Presenting author)
Keywords: Abandonment, Medieval and post-medieval period, Rural settlement
Presentation Preference: Poster

The abandonment of rural settlement (desertion and shrinkage) is documented over the majority of European countries, especially between the 14th and 17th centuries. In some areas, desertion affected more than half of the all settlement units and significantly influenced the character and shape of today’s landscape. Despite considerable attention being paid to medieval settlements within several disciplines (history, historical economy, historical geography, historical demography, natural sciences and archaeology as well) the process of abandonment still remains poorly understood. On the contrary, a large number of reasons for settlement abandonment have been suggested across Europe, both cultural and environmental. In addition to various war events, demographic decline or unfavourable economic development, the human impact on the environment and changes in natural factors (deforestation, soil erosion, drying up of streams or an increase in flooding, climatic deterioration) have been supposed. A general idea of a ‘retreat from the margins’ is spread across European countries.

The paper evaluates the conventional concept of abandonment in marginal areas regarding their natural characteristics and tries to discuss the role of natural conditions in shaping of human communities together with their affect in wider transformations of land-use and the emergence of the countryside as a whole. Although the process clearly evokes the considerable change, systematic study in large-scale level has obtained remarkable evidence of continuity as well – 1) some settlements situated in positions originally regarded as marginal were not deserted at all; 2) some settlements survived in shrinking 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.

Up and down: Models of landscape use in Middle-Late Bronze Age. A study case from Eastern Romania

Author: Prof. Bolohan, Neculai, Alexandru Ioan Cuza University of Iasi, Iasi, Romania (Presenting author)
Keywords: landscape, Middle-Late Bronze Age, patterns
Presentation Preference: Poster

The Middle Bronze Age is represented by Costisă and Munteni cultures and the Late Bronze Age is represented by Nouă culture. For the case under study in the workspace it stands out the different way of using the landscape. This change is due to both natural factors and human factor. In fact, we are talking about two totally different behavioral patterns that did not imply the residence in the same place.
Among the factors that affected the dramatic shifts in patterns of living are: deforestation, imposition and acceptance of a macro regional housing model that fits better to the new type of economy, the need for an efficient exploitation of local sources (especially salt).

As a consequence, at the transition from the Middle Bronze Age to the Late Bronze Age in Eastern Romania it occurs a major change in the housing model which was represented by fortified settlements (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 found the data to support this assumption.
against the disease. Synchronously, people did trust the very same institutions to scotch the plague, not at least in their constant
fear of its return, by devoutly donate more lands and properties to them.

TH6-13 Abstract 03
Surgical treatment at the Danish Cistercian Abbey of Æm - A critical analysis
Author - MA Møllerup, Lene, Museum Standerborg, Standerborg, Denmark (Presenting author)
Keywords - Medieval abbey, Skeletal paleopathology, Surgical treatment
Presentation Preference - Oral

Through eight decades the Cistercian Abbey of Æm, Denmark, has been well known nationally and internationally for its traces of surgical treatments on medieval human bones. The human bones derive from the monastic burial grounds in and around the Abbey 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 undebatable. Modern anthropological analysis is questioning the former interpretation of the human skeletal material. New insight gives the basis to reevaluate the role of the Cistercian monks as physicians and surgeons. This paper looks into the alleged surgical treatment on human bones and deals with the question, whether surgery has taken place at the site, as well as the monastery's role as a medieval hospital.

TH6-13 Abstract 04
Heavy metal: health, medical tradition and cultural exchange in historic Iceland
Author - Walter III, Joe Wallace, Reykjavik, Iceland (Presenting author)
Co-author(s) - Prof. Kristinadóttir, Steinunn, Department of Archaeology, University of Iceland, Reykjavik, Iceland
Co-author(s) - Deasencia, Natasa, Reykjavik, Iceland
Keywords - disease, osteology, alchemy, heavy metals, culture, Iceland, monastery, hospital, medicine, treatment, syphilis, mercury, palaeopathology, ICP-MS
Presentation Preference - Oral

Skiðulaklastur, located in the east of Iceland near the Vatnajökull glacier, operated between AD 1493-1554. As an Augustinian monastery, Skiðulaklastur 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 isolation. In the decades after the large volcanic eruption in Vatnajökull in 1477. In the 13th century, alchemists began to use cinnabar ore (mercury sulfide) 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 example. In addition to disease, it is also vital to consider environmental influences on human health as a result of living in isolation. In the decades after the large volcanic eruption in Vatnajökull in 1477.

Inductively coupled plasma mass spectrometry (ICP-MS) was used to measure heavy metal concentrations in 50 samples from individuals excavated at Skiðulaklastur. This presentation will discuss the results of osteological and chemical analyses, considering environmental, medical and occupational exposure to heavy metals. The results of stable isotope analysis for strontium will enable this research to consider the geographic origins of the individuals seeking treatment at Skiðulaklastur, thereby providing further insight into concepts of mobility, isolation and care in historic Iceland.
It is well known that many treatments for diseases and injuries existed in the later Medieval period (ca. 1050-1550 CE) in Northern Europe. Written records, surgical instruments and other artefacts for wound treatment, medical 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 tissue layers. 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 treatise 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 mastitis infections. Nevertheless, since infections may have a number of different causes and should therefore not be considered 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 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 to other, probably less invasive treatments for cranial trauma and neurological disorders were favoured. Amputations are rarely seen in human remains and the few known examples from late Medieval England and the rest of northern Europe might be due to the low survival rate of affected individuals. Furthermore, unhealed amputations might not be easily observable and they can potentially be mistaken for post-mortem damage.

Lastly, fractures, especially of long bones, when healed with little deformities have been viewed as evidence for fracture treatment. However, it has to be acknowledged that fractures of the lower arm and leg bones, when affecting only one bone might naturally heal without angulation, even in the absence of treatment.

In conjunction with these examples, further evidence for fracture treatment will be discussed and critically evaluated, but it has to be concluded that without additional contextual evidence human skeletal remains are not an unambiguous source of information if we want to infer medical treatment in the past.
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. Collar fractures were found in four individuals; two 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 impalpability ossifica on the posterior tibia.

Males had more trauma than females and the prevalence was higher in older individuals, which was also found in most of the previous bioarchaeological studies. The ribs, tibia, and skull were more affected in males, while the radius, ulna, and vertebrae were more commonly involved in females. The radius and ulna were more affected in the individuals that died as old adults. Interestingly in our study trauma was found to be positively correlated with moderate or considerable amounts of dental calculus and osteochondritis dissecans, and the implications of these findings will be discussed in more detail.

Most of the observed trauma consisted of well healed lesions with only slight angular deformity and little overlap. Two of the fractures were healed but ununited, and two were unhealed perimortem injuries. Barber-surgeons in many of the locations are known from historical sources and in the mid-18th century provincial doctors were employed to treat the injured.

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**TH6-13 Abstract 11**

**Living on the Edge:**

**Trauma Patterns in Medieval Vilnius (16-18th c.)**

**Author:** PhD student Kazakeviciute, Justina, Faculty of History, Vilnius University, Vilnius, Lithuania (Presenting author)

**Keywords:** Trauma, Vilnius

**Presentation Preference:** Oral

Skeletal remains provide one of the most crucial and direct sources of evidence for the occurrence of violence, work related activities, and ill-fortune in the past. While fractures are the most common pathological condition, we still struggle with the most plausible explanations for its cause and probable outcomes.

Vilnius, the city of diversity, both religious and cultural, serves as an interesting subject for studies of everyday life and its peculiarities in medieval period. Thus, 5 different objects representing varying social status were selected for investigation of trauma pattern: Cathedral and Liejyklos street (17-18th c.) – elite members of society, church of The Holy Trinity (17-18th c.) – clergy; St. Stephen’s Basilica and Trakų street (17-18th c.) – plague victims; Mindaugas street (19th c.) – poor.

A total of 109 injured individuals (27.3% of total individual count) were observed among 400 examined males, females, and non-adults. 82 (20.5%) had only one fracture, while 27 (8.6%) suffered more than one injury. Five cases were recorded as perimortal - no healing signs suggested an early death. Males correspond to the universal model which indicates their trauma pattern: Cathedral and Liejyklos street (17-18th c.) – elite members of society, church of The Holy Trinity (17-18th c.) – clergy; St. Stephen’s Basilica and Trakų street (17-18th c.) – plague victims; Mindaugas street (19th c.) – poor.

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**TH6-13 Abstract 12**

**Social welfare and health status of the Upper Lauzitze - a Tormersdorf/Toporów settlement case study**

**Author:** PhD Szczureckis, Jacek, Wrocław University of Environmental and Life Sciences, Wrocław, Poland

**Co-author(s):** PhD Konczewska, Magdalena, Wrocław University of Environmental and Life Sciences, Wrocław, Poland

**Keywords:** Social welfare, health status, Upper Lauzitze, Tormersdorf/Toporów settlement

**Presentation Preference:** Oral

So far, during two seasons of field work carried out in the micro-region Tormersdorf-Toporów, excavations were conducted within the relics of the cemetery, located to the northwest of the ruins of the village. During archaeological analysis, only one phase of use of the cemetery was found, dated on the first half of the XIXth century and from that period 32 adults (24 men and 8 women) were excavated.

Pathological lesions were present in all excavated skeletons. Its intensity was predominantly high. In 26 cases (81%) intercostal teeth loss was visible. Dental caries was present in 20 cases (62.5%) and in 9 cases (28%) periodontal lesions were found. Moreover, degenerative and overload lesions of the spine, injuries and bone fractures were observed as well. An unique case of the male skeleton in maturus class of age with bilateral amputation of lower thigh was found.

The nature, intensity and incidence of pathological changes found in the skeletons from the cemetery from the micro-region Tormersdorf-Toporów may indicate study group exhibit distinctive features. Variety and occurrence of the pathological lesions may indicate a low level of hygiene, poor health conditions and long-lasting work overloading of the individuals as well.

Based on archival data, it was established that at the turn of the XIXth century in former Tormersdorf theosocial care home (Bruder-und-Pfleghaus2OAR) was functioning. This allows to ease working hypothesis that the majority (even all) of the graves found in Tormersdorf-Toporów are likely to be associated with burials of the residents of this institution.

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**TH6-13 Abstract 13**

**Medieval medical cultures in Sweden – practices and ideas mirrored in materiality**

**Author:** PhD Bergqvist, Johanna, Lund university, Genarp, Sweden (Presenting author)

**Keywords:** archaeology, medicine, medieval

**Presentation Preference:** Poster

Medical practice is formed not primarily by knowledge, but by culturally motivated apprehensions of what disease is, what causes it and how the body functions. In medieval Sweden (by today’s geographical borders) the monastic orders brought with them a medical culture with roots in ancient classical and medieval scholastic traditions. This medical culture included its special material culture, i.a. in the form of surgical instruments and other equipment. These artefacts are encountered when monastic sites are excavated. A previous assumption within medieval history has been that it was the monasteries which brought medical knowledge to the North. However, an extensive survey of archaeological findings in Sweden, has revealed that artefacts related to monastic medical culture did not spread outside the monastic 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

Author - Gómez-Contreras Ruiz, Guillermo, University of Reading, Reading, United Kingdom (Presenting author)

Co-author(s) - Tejerizo, Carlos, Universidad del Paíis Vasco, Vitoria, Spain

Keywords: Archaeology of religion, Minority religious, Social identities

Presentation Preference - Regular session

Understood as a part of social identity of past societies, religion shall be contextualized in a historic and social frame that can explain this phenomenon in terms of complexity. Religion can be seen as part of macro-ideological discourses, such as the Crusades or Jihad, or as part of the relation between States and religious institutions, but also a form to shape social relationships within local communities and a form of political and ideological control among those who profess a different faith of the rulers.

The main aim will be to explore the possibilities and limits of archaeology to study religion as a social phenomenon in past societies and to shape its importance in different case studies within a long-term view. The session will discuss religion both in its importance as a state institution and as a social form of identification within local communities and minority religions, and also the conflicts derived from the contact of those spheres, as for example when internal transformations from radicalization of some groups within major religions are produced. The first groups were targeted by stigma and discrimination, especially when religious differences are correlated with other instances of social identity, such as ethnicity. The second have been agents of change at different times, causing not only cultural reforms, but above all economic, political and social transformation. Both are needed to understand the role of religion as a part of social identity, and to serve to understand the cultural complexity of the Middle Ages and beyond.

Which kind of material record is available for the study of these groups? What are the main differences of minorities and radical versus minorities beyond the cuts? How does religion reinforce their identities in relation to others? These are some of the questions we intend to address in this session.

TH6-14 Abstract 01
Muslim and Protestant religious minorities
and funerary spaces in south of France

Author - Gleize, Yes, Pessac, France (Presenting author)

Keywords: Funerary archaeology, Religious minorities, South of France

Presentation Preference - Oral

During the Middle Ages, the institutionalization of the concept of Christian cemetery raises the question of the integration of the religious minorities. Were religious minorities always had separated funerary spaces and how were they organized? Archaeological data could inform on specific funerary practices of peculiar communities. Thus different types of graves have been identified by funerary archaeology and their analysis could sometimes provide to discuss the presence of minority groups. However their study requires a careful inquiry to identify religious minorities and the possibility of specific funerary spaces.

Small groups of graves recently excavated in South of France could be maybe linked with religious minorities as Muslims and Protestants. But their identification and their study require taking in account historical context and different archaeological parameters. The archaeo-architectural analysis crossing at the same time archaeological and biological data allow to bring new data on the identity of the deceaseds, on the funerary practices and the organization of funerary spaces. Examples from recent excavations in south of France, in particular from the city of Nîmes, will be analyzed by crossing at the same time textual and archaeological sources. This discoveries still few in France allow to discuss the intrusion or not of communities such as the Muslims or the Protestants in the funerary spaces. But it will important to analyze their presence over the long term of history and to try to distinguish potential evolution.

TH6-14 Abstract 02
Dealing with identities. Archaeological traces of Muslims
and Dimmi-s in the Middle Mark

Author - Bueno, Marisa, Université Paris Est Créteil, Paris, France (Presenting author)

Keywords: Archaeology, Ethnicity, Identity

Presentation Preference - Oral

In this paper I deal with the problems derived from adscription of archaeological site to Berbers, Muslims and Christians in the north of the Middle Mark of al-Andalus. I present both, the results of archaeological surveys integrating data from the Archaeological and Culture Territorial Service of Soria, Castile-León, and the analysis of materials preserved in the Numantino Museum (Soria) used in my PhD dissertation. I will pay special attention to cemeteries sites such as Mirlo de Medinaceli and Conquézuela. These sites reflect the different powers successively overlapped and the problems concerning the adscription of identifiable bearers in the complex Middle frontier between 8th-11th centuries.

The settlement of Umayyad’s powers in the north-east of the Middle Frontier is a process quite well established through written Islamic sources: between the 8th and 9th century different Berbers imagues, clients of the Umayyad’s lord’s were settled in this area, years later, after the abolition of Abd al-Rahman III (939) as Caliph, this area was rebuilt and became the most active frontier with Christianity in al-Andalus between the 10th and 11th century. However, the explicit recognition of these realities raised delicate problems concerning their chronological and religious-identitarian adscription.

In one hand, the settlement of Berbers imagues 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 transformations of this population?

After 946, Medinaceli was rebuilt and became the administrative centre of the Middle Mark, while the nearby fortress of Gormaz became the military centre, the starting point for the northern expeditions replacing the Alfama frontier. This area became a sophisticated frontier based entirely in a network of fortress and towers depending on Umayyad power, and the expression of power of the Umayyad Caliphate based on jihadi mentality.

However, the new Muslims’ rulers were not installed over an uninhabited areas, terra deserta, but rather over a territory previously politically-disarticulated. The previous indigenous inhabitants were mostly ‘Christians’. The new power granted them a protected subordinate place in society through the status of dimmi-s or protected people. The traces of these people are almost invisible, mainly rock-cut tombs sites. These ones are not associated with artefactual or osteological remains, thus making it impossible to 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 inextricably linked, affecting all aspects of socio-religious life including dietary requirements. This paper addresses debates on socio-religious changes in an understood area of Portuguese history, applying carbon (13C) and nitrogen (15N) stable isotope analysis to investigate the diets of Islamic and Christian communities in medieval Portugal under shifting religious political control. Stable isotope analysis, which provides direct evidence of the diet of archaeological individuals, has been applied to the skeletal remains of Muslims and Christians from the medieval sites of Beja (9th-11thC AD) and Silves (9th-13thC AD). These sites are notable for the presence of communities of Muslims and Christians that co-existed before and after the Christian conquest. Beja provides the remarkable opportunity to analyse contemporaneous Muslims and Christians living under Muslim rule and buried in the same burial ground. In addition Silves offers an insight into the influence of the Christian conquest onto the economy and lifestyle of the Christian minorities in southern Portugal as well as the effect of the shifting political control on the pre-existing Muslim groups. The combination of the data from these two settlements will provide information on the economies and the subsistence strategies put in place by religious minorities as well as shedding light on the development of medieval pluralistic societies under shifting powers and during transitional periods.
Archaeology without borders

TH6-14 Abstract 06

The Fact of the Mother Goddess

Author: PhD Sozer Kolemenoglu, Selma, Marmara university, Istanbul, Turkey (Presenting author)

Keywords: Religion, Art, Archaeology, Mythology, Philosophy

Presentation Preference: Poster

INTRODUCTION-PURPOSE: In this study, we show that the terminological context of the Mother Goddess idols are dealt in the context of mythologies, art, archaeology, philosophy and religion. The connections of the effects of the idol wares which the antique individuals (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 conjuecture 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 integrality in the history of religions and their connections in the holy scriptures, may be needed to be examined.

We think that some critical scientific theories in art, religion and archaeology may have correlation with the idols. By taking the interpretations in the holy scriptures and the mythologies, their theses and antitheses were frequently compared. The fixed most important topic was that the observability of whether the abstract symbolic knowledge which is necessary in knowing humanbeing, the sociological ideas realized in the life environment by coming to know the nafs. RESULT: We found out that the consequences 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 explanations of the Pharaoh, idol (ego), 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. In the "Stade de France," the symbol of the growth of the town of the 21st century. Here, the new constructions and urban development have erased the shape of the ancient town.

More than 40 years of urban archaeology allowed us to gather data to understand the mechanism of urban growth from the beginning to present day. In order to place the research in a long-term framework, in 1982, the municipality created the archaeological Unit.

The Saint-Denis' excavations have produced a vast mass of archaeological finds. Archaeology is a concrete discipline, perfectly suited for establish direct contact with general public. The outreach program, "Archaeology, territory and citizenship" is in progress since 1998. The goal of this project is to transform archaeological material into tools of understanding the territory. We are not using monumental remains but finds of daily life, experimental structure and local links, to cross both the know-how of past and present. This project, supported by the European projects, ACE and NEARCH are every time an experience because the question of the inhabitants and the invisible towns of Saint-Denis is renewed.

TH6-15 Abstract 02

Declaring First Nations to live with Muslims, A Basque reflection on existence and coexistence

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

Keywords: Archaeology, coexistence, terrorism

Co-author(s) - Adurralde, Agustin, University of the Basque Country (UPV/EHU), Vitoria-Gasteiz, Spain

Presentation Preference - Regular
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It was thought by the EAA Executive Board that, in my role of EAA president, a session should be proposed to discuss members' reactions about EAA politics as part of our strategic planning. When I was preparing this proposal, we were shocked by the 13-Nov terrorist attacks in Paris. Then I decided to change the focus of this "presidential" session to explore the contribution of Archaeology to promote "convivencia" among different communities in multicultural environments, an issue that also matters because it deeply relates to the practices that EAA should encourage. The term "convivencia" is used in Spanish because this was the concept developed in medieval Iberian Peninsula to denominate the coexistence, partly cooperative partly conflictual, of Jewish, Muslim and Christian communities (http://www.mpibberlin.mpg.de/workshops/en/Convivencia.html). "Convivencia" means more than living together, it is practicing coexistence between communities and actors in contexts of cultural heterogeneity. Critical accounts of "convivencia" should acknowledge that these actions do occur amidst conflicts and networks that are also crossed by asymmetrical relations of power. The other regard of this session is "Saint Denis", an area that suffered the 13-Nov attacks, where the Unité d'archéologie has developed activity under the aim of using the archaeological foundations of the town to create a shared identity and neighborhood.

Archaeology, because its relation to materiality, memory and identity, is useful to mediate in these conflicting contexts. It unveils dissent, creates basis for intersubjectivity, promotes dialog between agents and communities, and provides means for public and community activism.

Session aims to explore these capacities and reflect about contradictions inside these practices. We should both consider theoretical approaches and identify good examples of projects that could help to strengthen this application of Archaeology and be helped by our recognition. Cases studies can derive from any sort of cultural heterogeneity and communities interactions.

TH6-15 Abstract 03

Heritage for convivencia: The Inter-American and Caribbean Cultural Heritage Working Group Meeting

Author - Dr. Majewski, Teresa, Statistical Research, Inc., Tucson, United States of America (Presenting author)

Co-author(s) - Altschul, Jeffrey H, Statistical Research, Inc., Tucson, United States of America

Keywords: convivencia, cultural heritage, disciplinary heterogeneity

Presentation Preference - Oral

In response to ever-growing threats to intangible and tangible cultural heritage in the region, the Anthropology Department of the State University of Campinas (UNICAMP), Campinas, Brazil, organized and held the inaugural meeting of the Inter-American and Caribbean Cultural Heritage Working Group on August 11-12, 2015, at UNICAMP. The goal of the meeting was to establish a permanent collaborative forum to explore ways to improve practical and theoretical approaches to cultural heritage practice. Representatives from major anthropological and archaeological associations based in the Americas and the Caribbean, the UNICAMP Anthropology Department, and interested individuals discussed how stakeholders should engage with these issues to foster outcomes in the best interest of society. In less than two days of working together, the group drafted a declaration on the need to protect and safeguard cultural heritage in the Americas and the Caribbean and stressed the need for improvements in the theoretical and practical approaches used to develop community-based investigations about and interpretations of cultural heritage.

The declaration is expected to foster increased discussion and collaboration on cultural heritage studies. Created in English, the document has already been translated into Spanish, French, and Portuguese. The group is currently seeking formal approval from each of the professional societies and academic institutions that sent representatives to the inaugural meeting that they will become convening signatories to the declaration. A number have already agreed to "sign on."

Participants in the working group include archaeologists, cultural anthropologists, and linguists. The development of the "Campinas Declaration" is used as a case study to explore the dynamics of international, heterogeneous disciplinary communities working together successfully to craft a declaration that could be a model for collaboration in heritage studies. The declaration itself was crafted through intensive but brief collaboration that created an intellectual bond among the participants. Whether the working group can become a sustainable network of functioning partners will depend on the willingness of the sponsoring organizations to allow the network to flourish and establish working procedures that allow for its independent operation. If the focus can remain on a joint understanding that threats to cultural heritage, both tangible and intangible, are real and share universal elements, convivencia is distinctly possible. Archaeologists can contribute much to the success of the relationship because of their experience working with stakeholder communities concerned with both intangible and tangible heritage.
Integrating Archaeology at Vitoria-Gasteiz (Basque Country): terrorism, immigration and peace

Author: Professor Xurxo Ayer, University of Basque Country, Vitoria-Gasteiz, Spain (Presenting author)
Co-author(s): Garca Rodriguez, Sonia, University of Basque Country, Vitoria-Gasteiz, Spain

Keywords: Archaeology of Contemporary Past, Community Archaeology, Integrating Archaeology

Presentation Preference: Oral

In the late 1950's and early 1960's the small Basque town of Vitoria-Gasteiz became an important industrial center that attracted thousands of immigrants from other Spanish regions. Although it was considered by the franquist regime as a model of 'social peace,' the city saw the emergence of armed resistance by ETA and a significant labor unrest. Strikes of 1976 ended in a bloodbath. The crackdown on March 3, 1978 is a milestone for the city's population. The arrival of democracy in 1978 led to the conversion of Vitoria-Gasteiz in the capital of the Basque Autonomous Community. This region has a nationalist majority claiming independence for the Basque Country or at least converting Spain into a federal state.

In recent years the city has experienced a second wave of migration, with newcomers from the countries of Eastern Europe, Latin America, North Africa and sub-Saharan Africa. With 250,000 inhabitants, the Basque capital has become today in a multietnic urban space. As in the 1960s, it is a challenge to integrate these immigrants. A challenge not without its problems. Despite the effort made by the administration (social support) and civil society (platform 'Gora Gasteiz') at urban level they are creating real ghettos. A rejection of initiatives such as the construction of mosques (especially those working-class neighborhoods that had housed the first immigrants of the late twentieth century) has been observed.

At this very reality of globalization, in Vitoria-Gasteiz it is being lived another equally important process. The cessation of armed activity by ETA in 2011 has given way to a period of peace building and collective memory throughout Public policies of memory trying to do justice to the victims of the Franco's regime (1937-1978), of the terrorist group ETA (1958-2011) and State terrorism. Thus, the weight of terror continues to set the social and political agenda of the city in 2016. A purely Spanish terror, for now.

Within this reality, we believe that Archaeology of Contemporary Past is a valid and useful tool to try to consolidate a culture of peace, overcome the traumas of the past and promote a real integration of immigrants. In our communication we show the work of Heritage socialization that we have developed over the past three years: workshops on Archaeology of the Spanish Civil War, guided tours at working-class neighborhoods of Vitoria-Gasteiz, cultural courses about Archaeology of Franciscan at community centers... As a case study we will present the example of the district of Coronación, erected by the dictatorship in the early 50 to accommodate Spanish immigrants. Today Coronación welcomes much of the new Maghreb and sub-Saharan immigrants. The European Union is developing here between 2016-2020 a regeneration project of the neighborhood (Smart City). Our Community Archaeology Project aims to recover the material traces of the past, to present the history of the neighborhood and promote the integration of old and new neighbors across the Urban Heritage.

Uncovering convivencia from the dark depth of modernity:
toward intercultural rights to heritage

Author: Orlando Barban, Francesco Castro 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 synonymous for "civilized". In Granada, according to the Italian historian Adriano Prosperi, it was ignited the "seed of intolerance" that would have been the source for the legitimation of European expansion and colonial power throughout the world.

By focusing the attention on the process of modernity as a project for imposing a universal ethic and controlling peoples through their racial classification, Latin American decolonial theorists have shown how euro-western powers have been able to shape a world-system characterized by a logic of exclusion/inclusion in which the "Others" were those whose cultural and epistemic reference seemed to be unusable with the right way of social relation, cultural practice or economic development. Heritage conservation emerged within the context of imagining the national communities and formulating imperial powers in XIX century. International protection of heritage followed this ambiguous origin and it has been made possible in the second half of XX century thanks to its institutionalization and bureaucratization. Such a regime of heritage practice has reached its highest recognition in the last few decades through the deployment of multicultural policies within the context of the neoliberal affirmation of cultural diversity. But the same politics 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, specialty indigenous communities, to appropriate the universal mean of human rights and articulating it with their own category of thought and experiences. I would like to show how all human rights shall be interconnected and culturalized (this is "thought" from a perspective product of a particular experience) in order to be a real opportunity for social change and development, and so the whenshurl of heritage (inasmuch as it is the material and immaterial legacy of the past) for promoting respect among peoples by the mutual acknowledgement of both identity and difference, without avoiding the misunderstandings by virtue of which a real intercultural project is thinkable and enticing.
EXPERIMENTAL ARCHAEOLOGY: TECHNIQUES AND TECHNOLOGIES

Saturday, 3 September 2016, 14:00-18:30
Faculty of Philology, Room A7

Author: - Rinkūtė, Virginija, Vilnius University, Vilnius, Lithuania (Presenting author)
- Barceló, Joan Anton, Universitat Autònoma de Barcelona, Bellaterra, Spain
- Buch, Montserrat, Arqueològic, Barcelona, Spain
- Opri, Vasile, National History Museum of Romania, Bucharest, Romania

Keywords: craft techniques, experimental archaeology, scientific research, education, tourism

Presentation Preference - Oral

This session proposes presenting research of diverse aspects of experimental archaeology, prehistoric skills and techniques in the scientific research, various forms of education and its use in tourism industry. Main focus is on analysing various craft technologies, their development, and diffusion, as well as detecting ways of cultural interaction. All range of materials and items is welcomed.

TH6-16 Abstract 01
Testing twined clothing in Mesolithic

Author: - Rinkūtė, Virginija, Vilnius University, Vilnius, Lithuania (Presenting author)

Keywords: experimental archaeology, Mesolithic, twined clothing

Presentation Preference - Oral

In 2018-2019, some experiments, testing possibilities of (re)constructing twined clothing, were held. They were based on a find from the middle-late Neolithic settlement of Šventoji 2B (Lithuania), dated back to ~4800-2900 BC. The find, two specimens of rectangular shape were made of time base. They were compared with other extant European twines of similar or close periods. Three pieces of rectangular shape were produced, in order to test some technical and functional questions.

In 2012, it was decided to come back to one of the objects, which had inspired some construction and wearing possibilities of the (re)constructed twined clothing. It was an engraving on the aurochs bone, depicting five anthropomorphic figures, which was found in Ryemarksgård settlement (Denmark) and dated back to ~8000 BC. A set of photos, testing various variations of wearing the three pieces of clothing, was taken. There were tested more than 25 wearing possibilities, both male and female. Then it was tried to find out poses and actual pieces of clothing, which would best match the depicted figures. According to the congruous silhouette and constructional lines of the clothing, it was presumed, that most of the figures wore a rectangular long cloth ("a cloak"), just in 3-4 different ways. Some of the figures possibly wore a shorter rectangular cloth ("a skirt") underneath. Repeating parallel lines of the depicted clothing clearly indicate twining, and actual qualities of the (re)constructed twines do confirm the indication. Thus, it is highly possible, that twined clothing was produced and worn by some Mesolithic communities, i.e. much earlier than the dates of the extant finds had allowed presuming.

TH6-16 Abstract 02
New experimental data for discussing bone and antler softening methods in the Stone Age

Author: - MA Kuriga, Justyna, Institute of Archaeology, Nicolaus Copernicus University, Toruń, Poland (Presenting author)
- PhD Ignat, Theodor, National History Museum of Romania, Bucharest, Romania (Presenting author)
- Dr. Gurova, Maria, National Institute of Archaeology with Museum, Bulgarian Academy of Sciences, Sofia, Bulgaria

Keywords: antler, bone, use wear analysis

Presentation Preference - Oral

During the speech results of the latest experimental works conducted at the Institute of Archaeology, Nicolaus Copernicus University shall be presented, aiming to see the most effective methods for softening bone raw materials. The subject of the research was both the ease of processing with the use of flint tools and the possibility to shape the material by bending. The aim of the experiments was to identify the method or methods that could have been used by prehistoric communities.

The experiments involved deer antler as well as bovine long bones and ribs. Seven methods most commonly referred to in the literature were subjected to testing, which include soaking in water, tinct acid, osic acid, urine, flux oil, lime and boiling in water. Additionally, an unsoftern raw material was subjected to processing as part of a comparative test. In the case of soaking-related methods, the samples were exposed to the substances for a 3-week period with regular monitoring of chemical changes occurring therein. Once every week the rate of softening in the raw materials was tested in order to specify their banding properties and their susceptibility to sawing with the use of flint flakes.

As a result of the conducted experiments many interesting discrepancies in the effectiveness of individual methods were observed. Some of them seem highly effective, while others appear to be useful only in specific aspects or prove completely ineffective. In the course of the speech some of the current ideas regarding the discussed area of prehistoric economy shall be verified basing on the obtained data.

TH6-16 Abstract 03
Prehistoric drilling and bead manufacturing: Experimental approach and cognitive insight

Author: - Dr. Gurova, Maria, National Institute of Archaeology with Museum, Bulgarian Academy of Sciences, Sofia, Bulgaria (Presenting author)

Keywords: drilling, experiments, prehistoric beads

Presentation Preference - Oral

Two categories of early Neolithic objects are recognized on the Balkans as having been involved in prehistoric drilling activities: beads and other decorative and prestigious items made of bone, shell, pottery and various minerals, and toolkits of flint micro-borers.

This paper discusses experiments in drilling different materials undertaken with the aim of testing several practical issues. A series of flint micro-borers were produced and used for manual and mechanical drilling (with a pump drill) 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.

TH6-16 Abstract 04
Aspects regarding the production of Eneolithic pottery based on an experimental archaeological study

Author: - PhD Ignat, Theodor, National History Museum of Romania, Bucharest, Romania (Presenting author)

Keywords: Eneolithic, Experimental, Pottery

Presentation Preference - Oral

Aspects regarding the production of Eneolithic pottery based on an experimental archaeological study
The swatch of antiques bronzes

Author - PhD student Devogelaere, Jonathan, Aix-Marseille Université, Aix-en-Provence, France (Presenting author)
Keywords: Antiques bronzes, Colours, Swatch
Presentation Preference - Oral

As part of my thesis, entitled "The colours of bronze ceremonial furniture in the Graeco-Roman world, 200 B.C.E – 200 C.E.: from technical characterization to symbolic values", I have developed an experimental archaeology project to create a swatch of the varied colours of antiques bronzes, and to restate 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 lilac). 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 (copper, silver, gold, Continental bronze) can be inlaid by damascene or by plating to create polychrome decorations. Unfortunately, the archaeological material in copper alloys suffers the effects of time and deposition, which may lead to corrosion and discoloring 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.
Microwear analysis on early medieval combs

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 11**

**Experimental archaeology in Latvia:** some aspects possibilities for the future development

In Lithuanian archaeology experimental-traseology method currently is a very research area. Very first rudiments of this method originates in the last decade of the 20th century, when with the assistance of use-wear method in foreign laboratories, West and East Lithuania Stone Age sites flint material were analysed. Later, this method was applied for several Stone and Metal periods flint material functional analysis, which due to a lack of technologies and specialists in Lithuania, was also studied in foreign laboratories (Russia and Poland). Since 2010 experimental-traseology studies were launched at the University of Klaipėda (Lithuania).

**Keywords:** education, experimental archaeology, reconstruction

The presentation is dedicated to main stages of the development of experimental approach and applying its methodology in the archaeology of Latvia. Presentation examines main stages of development of the scientific thought and various expressions both in reconstructive experiments and interpretations, both in future possibilities of using it in future scientific research as well as a powerful tool in education of archaeology students and tourist.

**TH6-16 Abstract 12**

**Microwear analysis on early medieval combs**

**Keywords:** bone antler, comb, microwear

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.

**Co-author(s)** - Tys, Dries, Vrij Universiteit Brussel, Brussels, Belgium

**Presentation Preference - Poster**

Currently is evident for all that the archaeological excavations provide only fragments of data, like the pieces of a puzzle, about the architecture of the Eneolithic period. Thus, the architect and archaeologists are constrained in the interpretative process by the existing data, which leads inevitably to the speculative hypothesis, sometimes exaggerated or unrealistic. In these circumstances, the experimental archaeology makes a significant contribution to the overall knowledge and the understanding of the past, therefore further facilitating the implementation of a high-quality analytical approach. The aim of this paper is to examine the results of an experimental archaeology project from Romania, whose goal was the reconstruction of a Giumelnita culture dwelling (ca. 4500-3800 BC), based on relevant archaeological data. This reconstruction was paired by an inquiry of the volume of materials used for raising the construction in conjunction with the human factor and the time needed for building. Additionally, five years (2011-2015) it has been recorded the degradation process of the construction under the influence of environmental factors. The data collected over these years now help us to get a more accurate picture of the Eneolithic houses and how the Giumelnita communities build, use and repair this kind of structures. This work was performed through the Partnerships in Priority Areas Program - PN II, developed with the support of MEN - UEFISCDI, project no. PN-II-PT-PCCA-2013-4-2302.

**TH6-16 Abstract 13**

**The restructuing of the Artefact Study**

**Keywords:** Early Medieval, Neolithic, reconstruction

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 archaeological data acquired from archaeological objects employing the results obtained by experimental methods.

**TH6-16 Abstract 14**

**New insights into the Eneolithic architecture based on the experimental archaeology**

**Keywords:** Early Medieval, Neolithic, reconstruction

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**TH6-16 Abstract 15**

**Neolithic Painted Pottery in Lumea Noua Site (Romania). Manufacturing Technology Experimentation**

**Keywords:** Eneolithic, Experimental houses

**Presentation Preference - Poster**

The method of the presentation will provide the opportunity for high-quality analytical approach. The aim is to develop a technique that, combined with typological, scientific and context-based research, can investigate in how far these combs reflect aspects of identity.
Keywords: experimental work, Middle Neolithic, single-chambered kiln
Presentation Preference - Poster

Among the wide variety of decoration techniques discovered at the Alba Iulia-Lumea Nou site (Transylvania, Romania), a specific painted decoration to the present state of research the only technique that can be definitely attributed to the small middle Neolithic communities called Lumea Noua cultural group. Being the only material evidence that could lead to the configuration of this cultural aspect for the moment, various archaeometric analysis were made on a large number of samples, in order to extract all the informations regarding the technology that has been used to produce such painted decorations. Based on the material analysis, this paper presents an experimental foray into the manufacturing and firing of painted pottery, that we know so little about, in the Transylvanian Middle Neolithic.

The starting point was a detailed analysis of typical installation discovered in the painted pottery cultural areas that have evolved in the Transylvanian territory. We selected a single-chambered kiln type, which could have been used for the mentioned goal. We conducted several experiments in order to understand better how these kilns were constructed and we have tested the functioning system of the device.

The experimental results are a clear indicator of the presence of skilled potters and they could also change the traditional archaeological approach that links the quality of the pots with the elaborate installation for firing Neolithic pottery.

TH6-16 Abstract 16

Flint awls: theory and practice
Author - PhD Student Slah, Gvidas, Klaipėda University, Klaipėda, Lithuania (Presenting author)
Keywords: Flint awls, Mesolithic and Neolithic, Trasology
Presentation Preference - Poster

It is known that flint awls are not a common phenomenon in Stone Age inventory. This material has not have a separate subgroup in East Baltic region so far. Nevertheless, there were carried out several classification works: experimental and trasological results in order to represent the data of this research. The material was collected from Lithuanian settlements of Stone Age, which is divided into mesolithic and neolithic time-period. In addition, there were made several copies of mentioned material and completed experiments by using different kinds of animals’ skin: bison, deer, roe deer, beaver and mink. Skins and furs, experiments were chosen according to fauna of Mesolithic period. However, mink is also, a suitable example according to group of small mammals, for instance, martens. This is the evidence not only of fauna of that particular time-period, but, also, shows the thickness of different animals’ skin. Also, attention was paid to the functionality of flint awls utilization in different time-period according to leather processing. The experiments were tested by using flayed furs, which were dried, full of vegetal tannin and prepared skin. According to the data, it might be considered the effectiveness of flint material usage. Also, it has been established, which edges felt the biggest pressure during the process and which were worn out. After the research, it has been created the technological database, which are oriented to specifically one material analysis.

TH6-16 Abstract 17

Expense vs. Effect: An analysis of selected variables that affect the production of cost surfaces
Author - Casswell, Edward, Durham University, Durham, United Kingdom (Presenting author)
Keywords: Cost Surface, GIS, Site Catchment analysis
Presentation Preference - Poster

Cost Surfaces Analysis has become a common, if sometimes controversial, tool within archaeological study. Today, there are numerous GIS packages that allow the creation of cost surfaces and least cost paths at the “push of a button” (ArcGIS, GRASS, Idrisi). However, this is often at the detriment of hiding the technicalities of the program’s method, which may not always be ideal for archaeological research. As such it is often advised that these pre-prepared systems should not be overly relied on (Herzog, 2013, 164, Rademaker et al. 2012, 38). Yet, there are few papers dedicated to assessing the effects of varying any of the modifiable parameters available to each program, and therefore few guides in selecting an appropriate methodology. Those that do focus only on a limited selection of variables (Gietl et al. 2008, Magyari-Sága, et al. 2012, Herzog 2014).

This poster will depicts results of analyses that built on those existing works by systematically exploring the differences in cost surfaces produced when varying: GIS package (ArcGIS and GRASS), DEM resolution, Cost components (slope and terrain) and the coefficients that determine the cost of human movement.

It will demonstrate the variability in catchment area size and least cost paths that are produced through changing these variables across ten case study zones in Britain and also present wholly new data identifying the friction co-efficient for 6 terrain types found in Britain. The results identify which variables have the most significant effect on creation of cost surfaces and least cost paths in order to demonstrate which should be made explicit within publications and which have little overall effect to archaeological interpretation.
TH6-17 Abstract 01
The Institute of Archaeologists of Ireland: An update on our Activities

Author: Dr. Bonsall, James, Institute of Archaeologists of Ireland, Dublin, Ireland (Presenting author)
Co-author(s): MacDonagh, Michael, Institute of Archaeologists of Ireland, Dublin, Ireland
Co-author(s): Sullivan, Eoin, Institute of Archaeologists of Ireland, Dublin, Ireland
Keywords: Advocacy, Ireland, Professional
Presentation Preference: Oral

The Institute of Archaeologists of Ireland (IAI) is the representative organisation for archaeologists throughout the island of Ireland. The aim of the IAI, through the representation of our members, is to advance and strengthen the profession of archaeology in Ireland and membership is open to professional archaeologists working in either Ireland or Northern Ireland. The IAI’s cross-border agenda necessitates engagement with two legislative frameworks as well as two curatorial bodies and a range of interested cross-border groups.

The archaeological profession in Ireland suffered a substantial setback during the recent economic recession. As the economic slump began to impact on the development sector, archaeologists were amongst the first in the chain of pre-development workers to feel the downturn, with loss of projects, employment and wage decreases. Since 2008, the IAI has consistently tried to maintain professional standards amongst our workforce by holding regular Continuous Professional Development (CPD) events which reflects our core principles. The Institute maintains that a vibrant and sustainable archaeological profession actively contributes to the protection of our rich archaeological resource, which in turn contributes to the social and economic well-being of the entire community, driving tourism, social cohesion and local pride. To achieve our aim and vision, we are committed to a range of long-term measures, one of which includes the facilitation of CPD for our members and for non-members. CPD activity is monitored annually by the IAI via an easy-to-use CPD Record.

Over the last year the IAI has:

- Produced and funded our regular annual Journal of Irish Archaeology and bi-annual newsletters
- Carried out a wide-reaching membership consultation on the direction of the Institute as the profession seeks to recover from recession impact
- Initiated an internal strategic three-year plan for the Institute
- Supported and been a key partner in the all-island Archaeology 2025 strategy review of the archaeology sector
- Initiated and organised a variety of CPD events

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TH6-17 Abstract 02
Professional archaeology without borders

Author: Peter, Hinton, Chartered Institute of Archaeologists, Reading, United Kingdom (Presenting author)
Co-author(s): Wait, Gerry, Chartered Institute of Archaeologists, Reading, United Kingdom
Keywords: Association, CIA, Professional
Presentation Preference: Oral

Archaeology should be without borders, and professional archaeology must be without borders. Professionalism depends on an individual’s commitment and accountability to an ethical code, and that involves more than just complying with relevant national legislation. The professional is therefore an international phenomenon. In many disciplines, professional institutes have members in many countries – and professional bodies are either multinational or work in strategic partnerships across borders. Archaeology is no different. Over the last year, the Chartered Institute for Archaeologists has been in discussion with other professional associations for archaeologists and other organisations with an interest in professionalism. This paper will report on some of the ideas and plans, and will ask session participants what they would like to see.

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TH6-17 Abstract 03
Professionalising archaeology in Europe – 2016: a year of progress

Author: Dr. Wait, Gerry, Witney, United Kingdom (Presenting author)
Co-author(s): Hinton, Peter, Chartered Institute for Archaeologists, Reading, United Kingdom
Keywords: Archaeologists, Foresight and Horizon Scanning: the future of the Partnerships, Professional associations
Presentation Preference: Oral

Do people join organisations as members anymore? Or do they support campaigns and movements on a topic-by-topic basis, depending on electronic media to collaborate? If present social trends continue, membership of associations generally will continue to fall, with many either running out of money and ceasing to be effective and influential, or urgently needing to find new purposes. Professional associations are different, probably because membership is the price of professional recognition. Since the EAA meeting in Glasgow in 2015, the Chartered Institute for Archaeologists has been in discussion with professional associations for archaeologists in Europe and beyond, and other organisations that have identified a need for a professional association for archaeology in their country. This paper will report on some of the models for cooperation, collaboration or formal partnership under consideration, and will explore both the opportunities and difficulties of professionalising across borders. Subject to the meeting organisers’ timetable, CIA hopes to be able to invite participants in this session to an informal reception at which stronger partnerships can be made.
Following the Brexit referendum, and the development of trends towards criticism of the ‘European (union) Project’, the Executive Board of the EAA decided it must create time at the Vilnius Annual Meeting for a Round Table. The Round Table will discuss and examine the potential impacts of the Brexit vote for European archaeology, for EAA members generally and especially for our UK colleagues, whom we always hold in the highest regard.

We felt that urgent reflection on this matter was required, because it directly affects the EAA profile and its founding principles. The idea is not to precipitate or hurry. We need to pause, reflect and to look forward with confidence. Remembering that all societies are composed of individuals and what they create, it is a time to bring to mind that inclusivity, solidarity and friendship build understanding and trust. Trust encourages integration and unity of purpose.

One of the main focuses of the Round Table will address how we can foster cooperation, define how cooperation can strengthen links and create supportive networks and define how these links and networks can produce enduring engagement and achievement. Archaeologists generally, and especially those within the EAA, have demonstrated a significant capacity to work creatively across borders and archaeologists (our members) have demonstrated the great value of fostering international, open endeavor and communities. We in the EAA are even more committed to this focus now. We will maintain our enthusiasm for imagining a more inclusive, solidary and stronger Europe and a more representative EAA in that context.

The aim of the Round Table will be to make room for the collective consideration of how EAA should react and respond. Discussion will aim to define how to position the EAA in this new and complex cultural, social and political environment, recognizing that recent events in the UK are reflective of more widespread processes in European societies that we must recognize. This is a moment when an organization such as ours needs to establish and align its position with clarity, drawing on the very significant intellectual capital of its members. We look forward to this important discussion at Vilnius. We look forward to keep our founding colleagues, whom we always hold in the highest regard.

Because of the immediacy of the decision to hold this Round Table, we are still organizing its format and speakers. However, we want to stress that everyone is welcome and we hope that members will contribute actively to the discussion. The EAA must be flexible but prompt to address this situation and its specific requirements, and this also means we must be practical. We do not see a risk in structuring awareness and discourse. Moreover, we thank the Vilnius local organizers for making possible to create space for this Round Table, when the whole of the academic program was organized and in place.

The distribution of Spondylus gaederopus, a shell from the Mediterranean Sea, is one of the earliest examples for long distance exchange in Europe and is associated with the process of Neolithisation during the late 6th Millennium BC. Artefacts made of Spondylus can be found throughout Europe, from Greece to Central Germany and from the Ukraine to the Parisian Basin. Although the shell has been in the focus of prehistoric archaeology for nearly 130 years, there is still an ongoing debate about the sources, meanings and modes of exchange.

The distribution is often mentioned as a prestige good or gift exchange par excellence, but we have to be aware of a premature categorisation. Not only 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.

Earliest evidence of agriculture in Lithuania are coming from the Cerealia type pollen records that are attributed to the 5-4th millennium BC layers. However, the Cerealia type pollen count are very scarce and increase in number only by the Late Neolithic at ca. 3rd millennium BC. During this time macro botanical remains of cultural plants have been reported for the first time at the Late Neolithic settlements of western Lithuania along with various tools that are associated with agricultural activities. However, none of the cereal grains have been directly radiocarbon dated to precisely attribute them to the associated archaeological layers.

The chronology of the grains of cultural plants found in Lithuanian Neolithic settlements was a priori based on the typological dating of the artefacts found in the same contexts. None of the cereal grains of cultural plants have been directly radiocarbon dated to precisely attribute them to the associated archaeological layers. 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 Baltic. 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.

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Natural factors in early metallurgical production in Egypt and southern Levant

Author - MA Blakobrzacka, Daria, Jagiellonian University in Cracow, Cracow, Poland (Presenting author)

Keywords: copper metallurgy, Egypt and southern Levant, environment

Presentation Preference - Oral

The origins of copper metallurgy in ancient Egypt and southern Levant is a subject which always has been in the scope of scientific interest. According to current knowledge it may be traced back to the Chalcolithic period and the Early Bronze Age. In the past, many scientists have put great effort to recreate its general picture. Recently more data have been gained which is useful in reconstructing this branch of craft. In the light of evidences objects made from copper might have been considered by ancient societies as one of the most valuable goods. Moreover, it can not be ruled out that this material might have 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 the same pattern of production has been formed in areas of Egypt and southern Levant.

This paper should shed light on the subject of copper metallurgy during the Chalcolithic period and the Early Bronze Age in areas of Egypt and southern Levant. Importance of crucial natural factors which determined evolution of mentioned craft as well as particular stages of production which depended on them will be presented.

Celtic cart graves from Bréžice

Author - Murko, Mila, Institute for the Protection of Cultural Heritage of Slovenia, Ljubljana, Slovenia (Presenting author)

Keywords: Celtic cart, late Iron Age cemetery

Presentation Preference - Poster

In the vicinity of city Bréžice (southern Slovenia) Centre for the Protection of Cultural Heritage of Slovenia, Centre for Preventive Archaeology is carrying out a large-scale archaeological projects new Hydropower plant is being built on the Sava River. A number of archeological sites are under threat of being destroyed by different infrastructural building works and by flooding of large areas in order to make the accumulation lake. Archaeological research of the area, started in 2008, is still not finished.

During the last third of 2014 and the first half of 2015, a part of late Iron Age cemetery had been excavated. Archeological excavations took place in the area of a previously known archeological site of Bréžice - Sejmiček (Fairgrounds).

The site is well known in Slovenia and is renowned for its wealthy grave inventory, especially weapons and parts of Celtic unique cart that were found in the graves. Investigations of the archaeological site began in 1948 when during building works for a new veterinary station some parts of weapons and late iron Age pottery were found. Later more graves were identified during various infrastructural ground works. In 1981 first methodological archaeological investigations of the site began under the supervision of Mila Guštin (first archaeologist curator in Posavski museum in Brežice). During 1982 and his team excavated 57 graves. In 1997, another 10 graves were excavated west of the veterinary station. Until 2014/2015 excavation all together 73 graves were identified in cemetery.

Archaeological excavations in 2014/2015 identified 37 new graves. All 37 of them were cremation graves (the same as 73 previously excavated). Only 9 graves were preserved intact, majority of them were partly or totally destroyed by modern interventions. 17 graves were just partly disturbed as all the grave goods were found in situ and others were preserved in fragments. Graves were simple burial pits, without constructions made from stone or wood. Burial pits contained different grave goods, such as: ceramic vessels, iron weapons, fibular, glass beads, rings etc. Grave 36 contained parts of cart represented as crushed (during burial rituals) iron wheel alloy.

Chronologically, the graves can be dated in Middle and Late La Tene period (L.C. D). Majority of metal 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.
Wittchen, Dennis TH5-06
Wótk, Katarzyna TH2-19
Wokernann, Gisela TH1-18
Wouters, Barbara TH1-11, TH5-02
Wright, Deni TH2-04
Wright, Holly TH5-03
Wright, James TH2-01
Wronicki, Piotr TH4-02, TH5-06
Wuf, Sølvi TH5-14
Wunderlich, Maria TH3-09

X
Xuno, Ayin TH2-21, TH6-15

Y
Yağmur, Eniç Nurcan TH1-34, TH3-07
Yañez, Ana TH2-02
Yartsev, S. V. TH5-13
Yerkes, Richard W. TH1-34
Young, Christopher TH2-06, TH5-16

Z
Zakhra, Gintautas TH4-02
Zachar, Jan TH2-07
Zagorska, Iga TH4-07
Zaeve, Ganna TH6-11
Zalewska, Anna TH2-21, TH5-06
Zalsman, Edvin TH4-08
Zammit, Maria Elena TH5-10
Zampetti, D. TH1-04
Zapolska, Anna TH4-12
Zarin, Gunta TH4-07, TH4-11
Zarina, Liga TH1-16, TH5-01
Zavadsky, Emily TH5-13
Zaytseva, Irina TH1-12, TH2-10
Zeitensova, Olga TH2-10
Zeman, Piotr TH5-08
Zihan, Mikhail TH1-30
Zhrina, Natalia TH1-12
Zlinskaite, Agne TH4-04
Zimbler, Daniel TH5-05
Zinny, Marcellina TH5-14
Zinzi, Stephanie TH1-27
Živišiūči, Ivana TH1-10, TH1-20
Zobkov, Mikhail TH1-04
Zuega, Gudny TH1-28, TH3-13
Zubarev, V. G. TH5-13
Zubova, Alisa TH1-11
Zubrow, Ezra TH1-34, TH3-14, TH5-02
Zuckerman TH5-02
Žukus, Vidas TH5-13
Zupanek, Bernarda TH1-14, TH3-20
Zych, Renata TH3-10

FOR NOTES